F1 LCD Monitor/TV

F1-15" F1-20"

Service
Service
Service

15MF605T/17
20MF605T/17

Service Manual

Horizontal frequencies
F1-15"30 - 49kHz
F1-20"30 - 40KHz

TABLE OF CONTENTS

Description	Page
Important Safety Notice	2
Technical Data/Installation	3~8
On-Screen Display/Aging Mode	9~11
Warning message/Factory Mode	12~13
Trouble shooting	14
Failure Mode Of Panel/Wiring Diagram	15~16
Mechanical/Electrical Instructions	17~22
Display adjustment	23~24
DDC DATA/Instructions	25~32
ISP Instructions	33~34
Block /DC/DC POWER Diagram	35~36
PC-IN/SCART Diagram	37~38
VIDEO-IN/VIDEO DECODER Diagram	39~40

Description	Page
T/T DECODER Diagram	41
MCU/Scaler Diagram	42~43
SRAM/Panel Interface Diagram	44~45
Sound DECODER/Audio Diagram	46~47
Scaler Board C.B.A	48~49
Key And IR Diagram/C.B.A	50~51
YPbPr-IN/Inverter Diagram/C.B.A	52~56
Exploded View	57
Recommended/Spare/Different parts list	58~62
Repair Tips/Repair Flow Chart	63~66
General product specification	67~90
Circuit description	90~91
Safety Test Requirements	92

SAFETY NOTICE

ANY PERSON ATTEMPTING TO SERVICE THIS CHASSIS MUST FAMILIARIZE HIMSELF WITH THE CHASSIS AND BE AWARE OF THE NECESSARY SAFETY PRECAUTIONS TO BE USED WHEN SERVICING ELECTRONIC EQUIPMENT CONTAINING HIGH VOLTAGES.

CAUTION: USE A SEPARATE ISOLATION TRANSFORMER FOR THIS UNIT WHEN SERVICING.

REFER TO BACK COVER FOR IMPORTANT SAFETY GUIDELINES

Published by BCU Monitors Printed in suzhou Copyright reserved Subject to modification Ⓕ Jan . 21 2005 GB 3138 106 10444

飛利浦 PHILIPS PHILIPS

Important Safety Notice

Go to cover page

Proper service and repair isimportant to the safe, reliable operation of all HPConsumer Electronics Company** Equipment. The service procedures recommended by HP and described in this service manual are effective methods of performing service operations. Some ofthese service operations require the use of tools specially designed for the purpose. The special tools should be used when and as recommended.

It is important to note that this manual contains various CAUTIONS and NOTICES which should be carefully read in order to minimize the risk of personal injury to service personnel. The possibility exists that improper service methods may damage the equipment. It is also important to understand that these CAUTIONS and NOTICES ARE NOT EXHAUSTIVE. HP could not possibly know, evaluate and advise the service trade of all conceivable ways in which service might be done or of the possible hazardous consequences of each way. Consequently, HP has not undertaken any such broad evaluation. Accordingly, a servicer who uses a service procedure or tool which is not recommended by HP must first satisfy himself thoroughly that neither his safety nor the safe operation of the equipment will be jeopardized by the service method selected.

* * Hereafter throughout this manual, HP Consumer Electronics Company will bereferred to as HP.

WARNING

Critical components having special safety characteristics are identified with a bythe Ref. No. inthe parts list and enclosed within a broken line*
(where several critical components are grouped in one area) along with the safety symbol on the schematics or exploded views.
Use of substitute replacement parts which do not have the same specified safety characteristics may create shock, fire, or other hazards.
Under no circumstances should the original design be modified or altered without written permission from Philips.
Philips assumes no liability, express or implied, arising out of any unauthorized modification of design.
Servicer assumes all liability.

* Broken Line

FOR PRODUCTS CONTAINING LASER :

DANGER-	Invisible laser radiation when open. AVOID DIRECT EXPOSURE TO BEAM.
CAUTION-	Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.
CAUTION-	The use of optical instruments with this product will increase eye hazard.

TO ENSURE THE CONTINUED RELIABILITY OF THIS PRODUCT, USE ONLY ORIGINAL MANUFACTURER'S REPLACEMENT PARTS, WHICH ARE LISTED WITH THEIR PART NUMBERS IN THE PARTS LIST SECTION OF THIS SERVICE MANUAL.

Take care during handling the LCD module with backlight unit

- Must mount the moduleusing mounting holes arranged infour corners.
- Do not press onthe panel, edge of theframe strongly or electric shock as this will result in damage to the screen.
- Do not scratch orpress on the panel withany sharp objects, such as pencil or pen asthis may result in damage to the panel.
- Protect the module fromthe ESD as it maydamage the electronic circuit (C-MOS).
- Make certain that treatment person s body are grounded through wrist band.
- Do not leave themodule in high temperature andin areas of high humidity for a long time.
- Avoid contact with water as it may ashort circuit within the module.
- If the surface ofpanel become dirty, please wipe it off with a soft material. (Cleaning with a dirty or rough cloth may damage the panel.)

1. General

1.1. Product description

This 15 LCD Monitor/TV is specified as a display peripheral with analog video signal input and include TV function with 15 TFT LCD display.

Horizontal scan range is 30 -49KHz and refresh range is65 - 62Hz. This scan range allows it to display resolution up to1024*768 non-interlaced at60 Hz efresh rate. The image can be adjust through OSD control, these adjustments can be stored on a board memory Including 11 factory pre - load modes.

1.2. Basic data

1.2.1. LCD

1.2.1.1 LPL panel

Type NR. : LC150X02
Display area(mm) : 304.128(H) x 228.096(V) (15.0- inch diagonal)
Number of Pixels : 1024(H) x 768(V)
Pitch (mm) : 0.297(H)x 0.297(V)
Color pixel arrangement : RGB vertical stripes
Display operating mode : Transmissive mode, normally white
Color depth : 16M colors (6 bits with FRC)
Brightness (cd/m^2) : 450(cd/m^2)(Center 1 points Typ.)
Viewing angle (CR>10) : -65 ~ 65 (H), -55 ~ 45 (V)(Typ.)
Surface treatment : Hard coating(3H) &Anti-glare (Haze 13%)
Electrical interface : LVDS (1 pixel/clock)
Response Time : 16ms(typ.) (Tr+Tf)
Power Consumption (W) : 16.9(typ.)
Contrast ratio : Typical 400 : 1
Module size (mm) : 332.8(W) x 262.8(H) x 18.0(D)
Module weight (g) : 1750
Backlight : 4 CCFL

1.2.1.2. AUO panel

Type NR. : T150XG01
Display area(mm): 304.128(H) x 228.096(V) (15.0- inch diagonal)
Number of Pixels : 1024(H) x 768(V)
Pitch (mm) : 0.297(H) x 0.297(V)
Color pixel arrangement : RGB vertical stripes
Display operating mode : TN mode, normally white
Color depth : 16M colors (6 bits with FRC)
Brightness (cd/m^2) : 450 nit (typ.) @ 6.0mA
Viewing angle (CR>10) : -70 ~ 70 (H), -60 ~ 60 (V)(Typ.)
Surface treatment : Hard coating(3H) &AG
Electrical interface : 1ch LVDS (8bit)
Response Time : 16ms(typ.) (Tr+Tf)
Power Consumption (W) : 22 (typ.) @ 6.0mA
Contrast ratio : Typical 450 : 1
Module size (mm) : 32 6.5(W) x 253.5(H) x 14.4(D) (typ.)
Module weight (g) : 1350
Backlight : 4 CCFL

1.2.1.3. CPT panel

Type NR. : CLAA150XP03
Display area(mm) : 30.41(H) x 228.1(V) (15.0-inch diagonal)
Number of Pixels : 1024(H) x 768(V)
Pitch (mm) : 0.297(H) x 0.297(V)
Color pixel arrangement : RGB vertical stripe
Display operating mode : Normally white, TN
Color depth : 16.2M colors (6 bits with FRC)
Brightness (cd/m^2) : 400nit(typ.) (center, 6.5mA)
Viewing angle (CR>10) : -70° ~ 70°(H), -60° ~ 65°(V)(Typ.)
Surface treatment : Anti-glare
Wide viewing angle technology : Optical Compensation Film
Response Time : 16ms(typ.)
Power Consumption(W) : 17.1 (typ.)
Contrast ratio : Typical 500 : 1
Module size (mm) : 32 6.5(W) x 253.5(H) x 14.0(D) (typ.)
Module weight (g) : 1300
Backlight : CCFL, 4 tables, edge-light (top/bottom)

1.2.2. Power supply

AC/DC Power adapter: +16V DC/3.75A (100V~240V)
Power consumption: 40 W (typical)
Power cord length and type: 1.8M, USA type
Power indicator : LED (On-Green ,Sleeping mode Amber)
Auto power saving : EPA

1.2.3. Horizontal scan : 30- 49KHz

1.2.4. Vertical scan : 56 - 62 Hz

1.2.5. Input signals

1.PC Signal type
Analog Video: 0.7 Vpp Linear , positive polarity
Sync : TTL level , separate , positive or negative polarity
2.TV signal type
RF signal : Aerial input
Video signal : S-video input
CVBS
YPbPr
3.Audio signal : S-video L/R ,YPbPr L/R audio input
PC line in

1.2.6 Input connectors

(1) Input analog D-sub connector pin assignment:

PIN No.	SIGNAL
1	Red
2	Green
3	Blue
4	GND
5	GND
6	Red GND
7	Green GND
8	Blue GND
9	+5V (Supply from PC)
10	Sync GND
11	GND
12	Bi-directional data
13	H-sync
14	V-sync
15	Data clock

Sync polarity :
-Hori.sync positive/negative
-Vert.sync positive/negative

Technical Data(20MF605T/17)

Go to cover page

1. General

1.1. Product description

This 20" LCD Monitor/TV is specified as a display peripheral with analog video signal input and include TV function with 20" TFT LCD display. Horizontal scan range is 30-40K Hz and refresh rate 56-62Hz.

This scan range allows it to display resolution up to 800*600 non-interlaced at 60 Hz refresh rate. The image can be adjust through OSD control, these adjustments can be stored on a board memory including 8 factory pre-load modes.

1.2. Basic data

1.2.1 LCD panel

Type NR. :A201SN02 (AUO)
Display area(mm) : 408(H) x 306(V) (20.1-inch diagonal)
Display mode : TN type, Normal white + SWV film
Number of Pixels : 800(H) x 600(V)
Pitch (mm) : 0.51(H) x 0.51(V)
Color pixel arrangement : RGB vertical stripes
Display mode : normally white TN
Number of color : 16.7M (8 bits)
Brightness (cd/m^2) : 450nit(typ.)
Viewing angle : -80 ° ~ 80 °(H), -60° ~ 60 °(V)(Typ.)
Response time : 16ms typ. (Tr+Tf)
Surface treatment : Hard Coating + AR
Electrical interface : TTL (1 port)
Total module power(W) : 35W(typ.)
Contrast ratio : Typical 500 : 1
Overall dimension (mm) : 448(W) x 347(H) x 23(D)(max.)
Module weight (g) : 3500
Backlight : 6 CCFL
Income inspection, please refer to panel specification.

1.2.2. Power supply
Power consumption : Operating 55 W (typical)
Power cord length : 1.8M
Power cord type : USA type
Power indicator : LED (On: Green ,Sleeping mode: Amber)
Auto power saving : EPA

1.2.3. Horizontal scan : 30 - 40KHz

1.2.4. Vertical scan : 56 - 62 Hz

1.2.5. Input signals

1.PC Signal type

Analog Video: 0.7 Vp-p Linear , positive polarity

Sync : TTL level , separate , positive or negative polarity

2.TV signal type

RF signal : Aerial input

Video signal : S -video input

CVBS

Y PbPr

3.Audio signal : S -video L/R ,YPbPr L/R audio input

PC line in

1.2.6 Input connectors

(1) Input analog D-sub connector pin assignment:

PIN No.	SIGNAL
1	Red
2	Green
3	Blue
4	GND
5	GND
6	Red GND
7	Green GND
8	Blue GND
9	+5V (Supply from PC)
10	Sync GND
11	GND
12	Bi-directional data
13	H-sync
14	V-sync
15	Data clock

Sync polarity :

-Hori.sync positive/negative

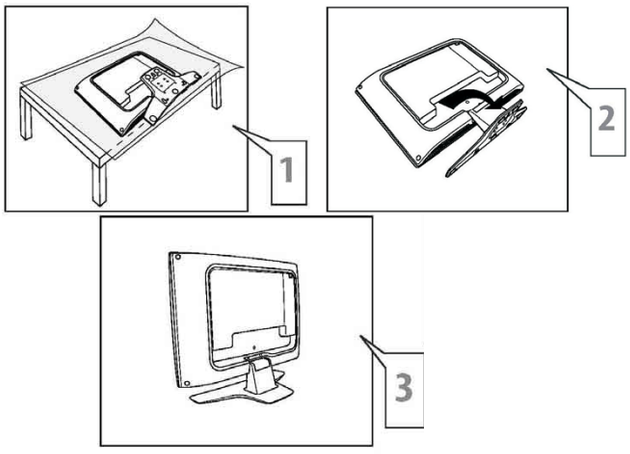
-Vert.sync positive/negative

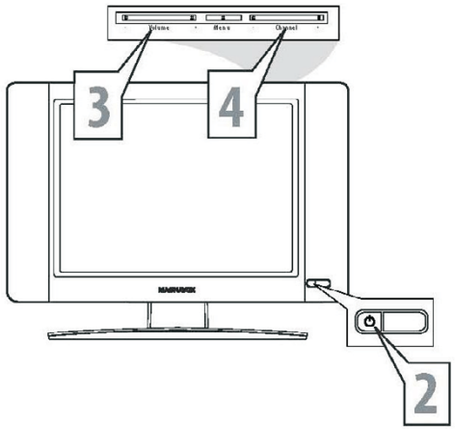
Installation

Before installation

Before proceed to install your new LCD TV ,please follow the steps and diagrams as shown to familiarize yourself with the correct and safe way of unfolding the base.

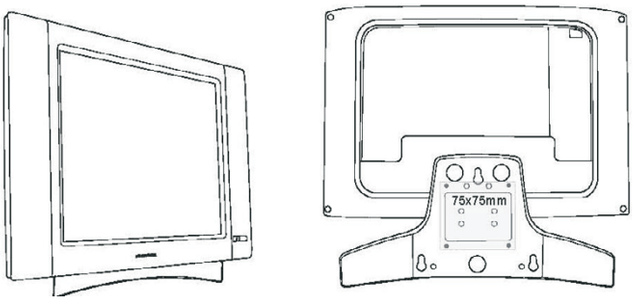
1.Place the set facing down on a flat surface and a protective sheet.
2.Unfold the base following the direction as shown on the diagram.
3.Place the set upright, you LCD TV is now ready for install.

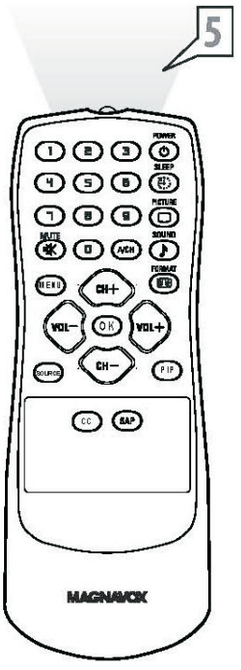




INSTALLING LCD TV ON THE WALL

The stand of your LCD TV is comply with Standard VESA 75 standard, if you intend to install the LCD TV on the wall, please consult a professional technician for proper installing.The manufacture accepts no liability for installations not performed by p rofessional technician.



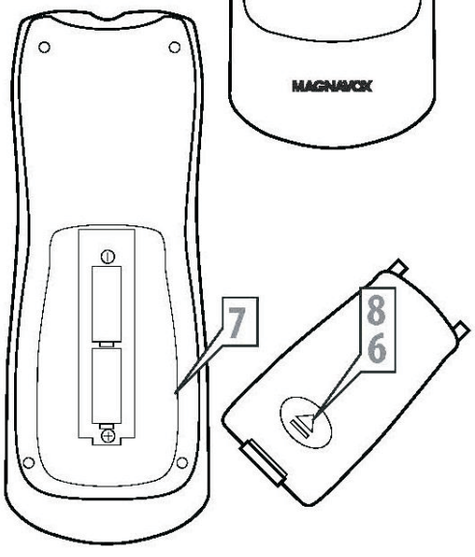


Television and remote control

1. Plug the DC adapter into the DC IN 16V jack on the LCD TV. Plug the power cable into an outlet.
2. Press POWER to turn on the LCD TV.
3. Press VOLUME + to increase the sound level. Or, press VOLUME – to lower the sound level.
4. Press CH+ or CH- to select channels.
5. Point the remote control toward on the front of the LCD TV when operating the LCD TV with the remote.

Battery installation

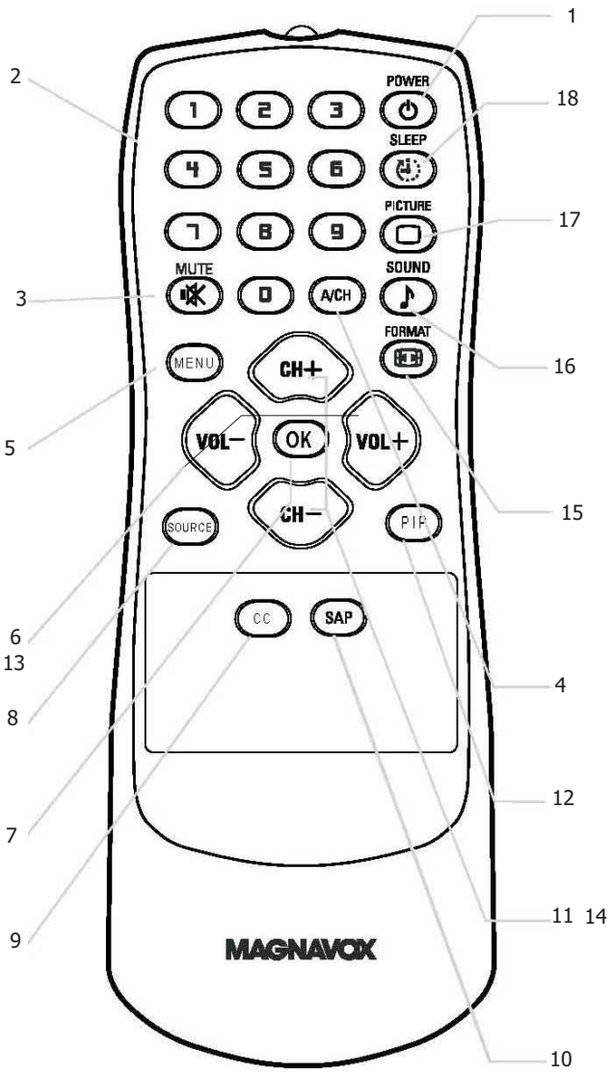
6. Remove the battery compartment lid on the back of the remote.
7. Place two AAA batteries in the remote. Be sure the (+) and (-) ends of the batteries line up as marked inside the battery compartment.
8. Reattach the battery compartment lid.



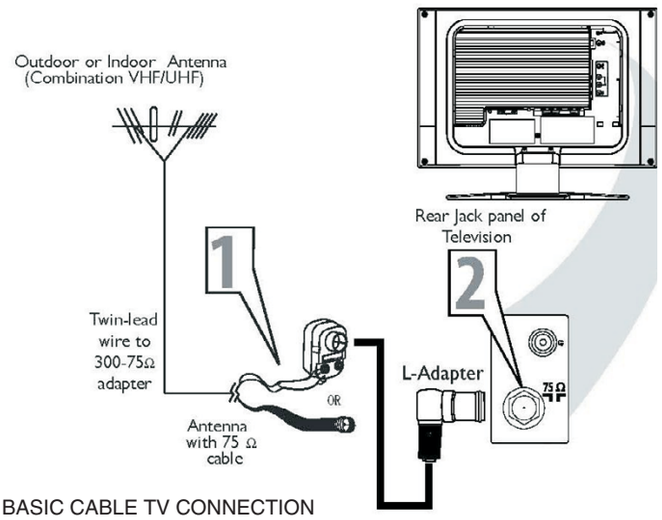
Installation

Go to cover page

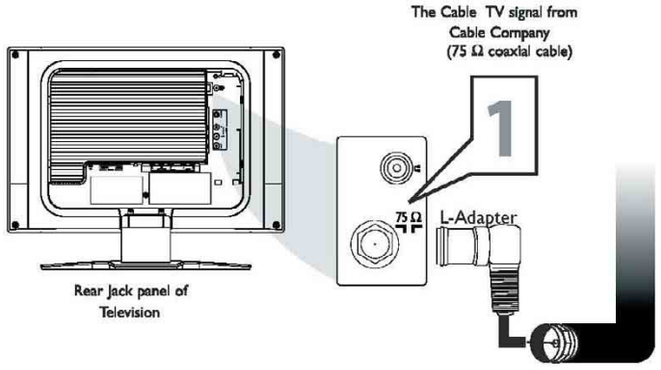
1.Power : Power On/Standby
2.Numerica keys : (0~9) ,Channel setting
3.Mute : Sound mute function
4.Prev-CH : Recall previous CH
5.Menu : Main menu select and OK key
6.VOL- : Left/Volume Down
7.OK : OK
8.Source : Source select for PC,Tuner,CVBS,S-video,HD
9.Closed cap. : Closed caption on/off
10.SAP(2nd audio) : Sound select
11.CH- : Down/Channel Down
12.PIP : PIP size select (Small/Medium/Large/PBP)
13.VOL+ : Right/Volume Up
14.CH+ : Up/ Channel Up
15.Display Format : Select display format (4:3, Expand 4:3, Compress 16:9)
16.Smart Sound : Select sound effect (Personal/News/Music/Theatre)
17.Smart Picture : Select picture effect (Personal/Movie/Sports/ weak signal/multimedia/Night)
18.Sleep Timer : Sleep timer 15,30,60,120,180,240 OFF



ANTENNA CONNECTION
Acombination antenna receives normal broadcast channels (VHF 2–13 and UHF 14–69). Your connection is easy because there is only one 75 Ω(ohm) antenna jack on the back of your TV, and that ' s where the antenna goes.

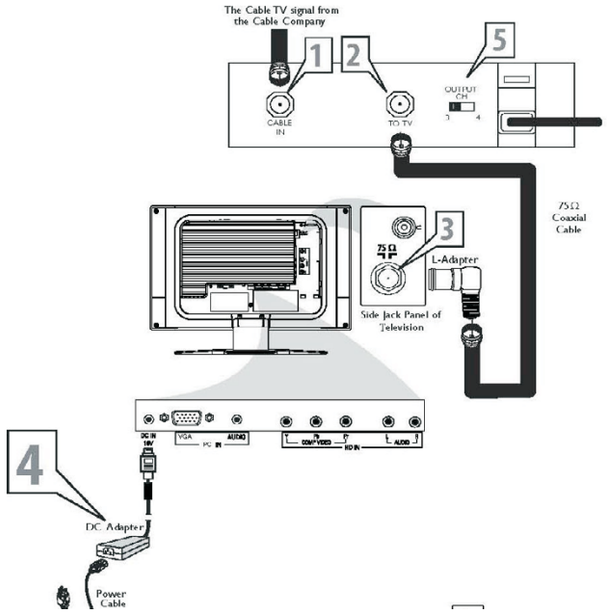


BASIC CABLE TV CONNECTION
Your Cable TV signal into your home may be a single, 75Ω(ohm) cable. If so, this connection is very simple. Follow the step below to connect your Cable TV signal to your new LCD TV.
1.Connect the Cable TV signal to one end of the supplied L-Adapter as shown, and connect the other end of the adapter to the TV jack on the LCD TV.



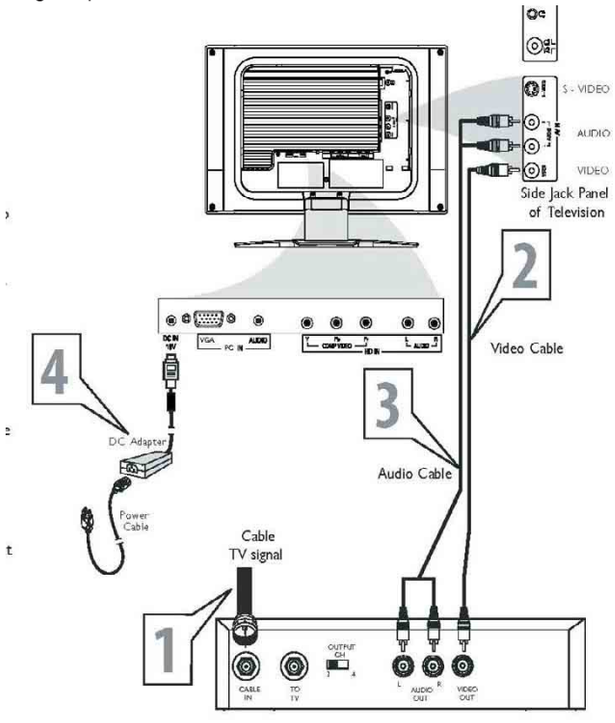
CABLE BOX CONNECTIONS
If you have a Cable Box, follow either set of these steps to complete your connections.
Cable Box with RF In/Out Jacks
This connection will not supply Stereo sound to the LCD TV.
1.Connect the Cable TV signal to the IN jack (or RF IN or CABLE IN) on the Cable Box.
2.Connect an RF coaxial cable (not supplied) to the OUT jack (or TO TV or RF OUT) of the Cable Box.
3.Connect the other end of the coaxial cable to one end of the supplied L-Adapter as shown, and connect the other end of the adapter to the TV jack on the LCD TV.
4.Plug the DC adapter into the DC IN 16V jack on the LCD TV. Plug the power cable into an outlet.
5.Set the Channel 3/4 (or Output channel) switch of the Cable Box to 3 or 4. Set the TV to the same channel. When watching TV programming, change channels at the Cable Box, not the LCD TV.

Installation



Cable Box with Audio/Video Out Jacks This connection will supply Stereo sound to the LCD TV.

1. Connect the Cable TV signal to the IN jack (or RF IN or CABLE IN) on the Cable Box.
2. Using an RCA-type video cable (not supplied) connect one end of the Video cable to the Video Out jack of the Cable Box. Connect the other end of the cable to the yellow VIDEO jack on the side of the TV. Video cables are usually marked with yellow and are available from Magnavox or electronics retailers. Video jacks on most equipment are yellow.
3. Using RCA-type, stereo audio cables (not supplied), connect one end of the cables to the left and right Audio Out jacks of the Cable Box. Connect the other end of that cable to the Audio jack on the side of the LCD TV. Audio cables are usually marked with red and white and are available from Magnavox or electronics retailers. The right audio jack is red and the left audio jack is white. Match the cable colors to the jack colors.
4. Plug the DC adapter into the DC IN 16V jack on the LCD TV. Plug the power cable into an outlet.

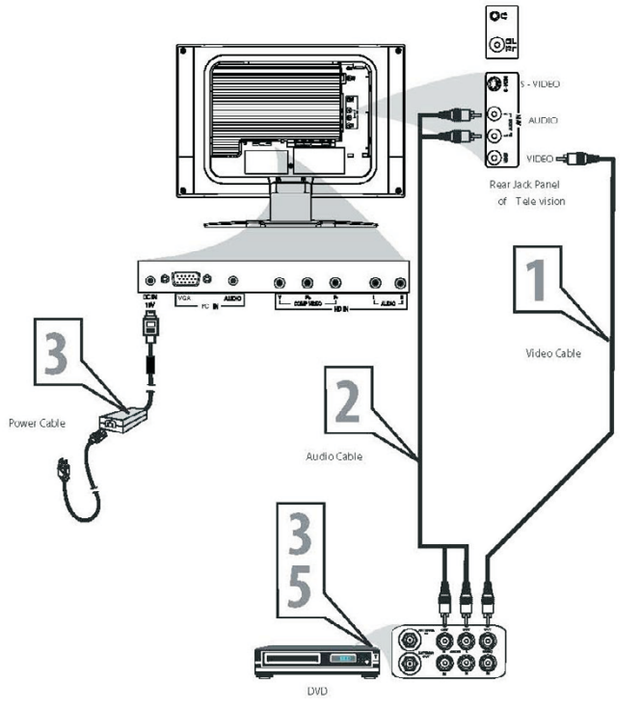


AUDIO/VIDEO INPUT CONNECTIONS

The AUDIO and VIDEO In jacks on the rear of the LCD TV enable quick connections of other equipment. Connect a VCR, DVD Player, Video Game, Camcorder, etc., to these jacks. To view the material playing on the other equipment, Set the LCD TV to its AV Mode.

1. Connect a RCA-style video cable (usually yellow or marked CVBS) To the VIDEO OUT jacks of the other equipment (DVD Player, Camcorder, etc.) and to the yellow VIDEO jack on the side of the LCD TV.
2. Connect RCA-style audio cables (usually red and white) to the AUDIO OUT (left and right) jacks on the other equipment. Connect the other end of the cables to the AUDIO jack on the side of the LCD TV.

3.Plug the DC Adapter into the DC IN 16V jack on the TV. Plug the power cable into an outlet. Turn on the TV and other equipment.
4.Press the Source button to set the TV to AV Mode.
5.Press PLAY on the other equipment to view its material on the TV.



The S-Video connection on the rear of the LCD TV can provide you with better LCD picture detail and clarity for the playback of accessory sources such as DBS (digital broadcast satellite), DVD (digital video discs), video games, and VHS VCR (video casse tte recorder) tapes than the normal antenna picture connections.

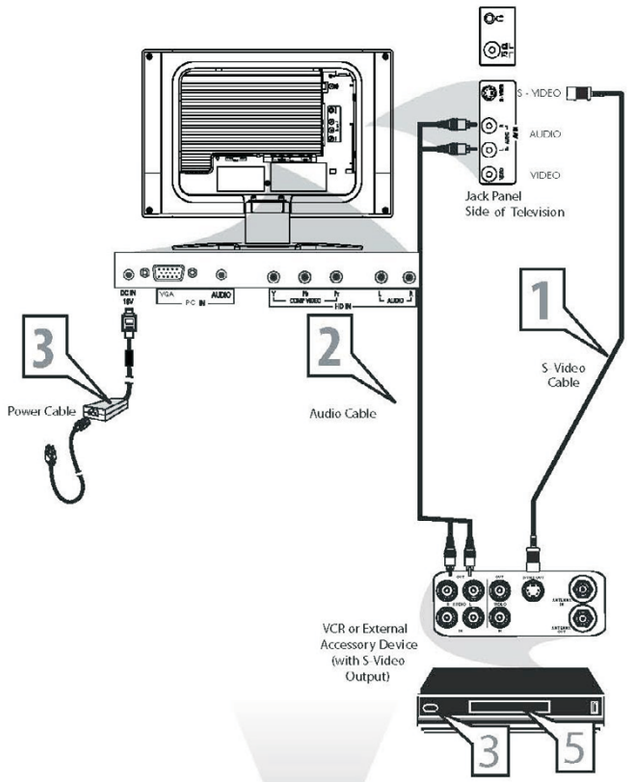
Note: The accessory device must have an S-VIDEO OUT (put) jack in order for you to complete the connection on this page.

1. Connect an S-Video cable to the S- VIDEO jack of the other equipment (DVD Player, Camcorder, etc.) and to the S - VIDEO jack on the rear of the LCD TV.
2. Connect RCA-style audio cables (usually red and white) to the AUDIO OUT (left and right) jacks on the other equipment. Connect the other end of the cables to the AUDIO jack on the side of the LCD TV.

3.Plug the DC Adapter into the DC IN 16V jack on the LCD TV. Plug the power cable into an outlet. Turn on the LCD TV and other equipment.
4.Press the Source button to set the LCD TV to its S-VIDEO mode.
5.Press PLAY on the other equipment to view its material on the LCD TV.

Installation

Go to cover page

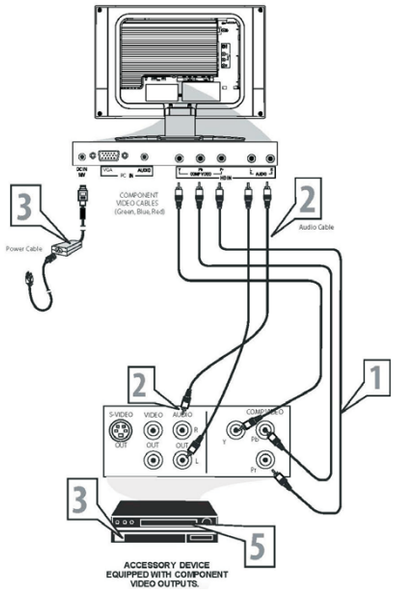


COMPONENT (YPBPR) CONNECTIONS

Component Video input provide the highest possible color and picture resolution in the playback of digital signal source material, such as with DVD players.

Note: The accessory device must have an component(YPbPr) output jack in order for you to complete the connection on this page.

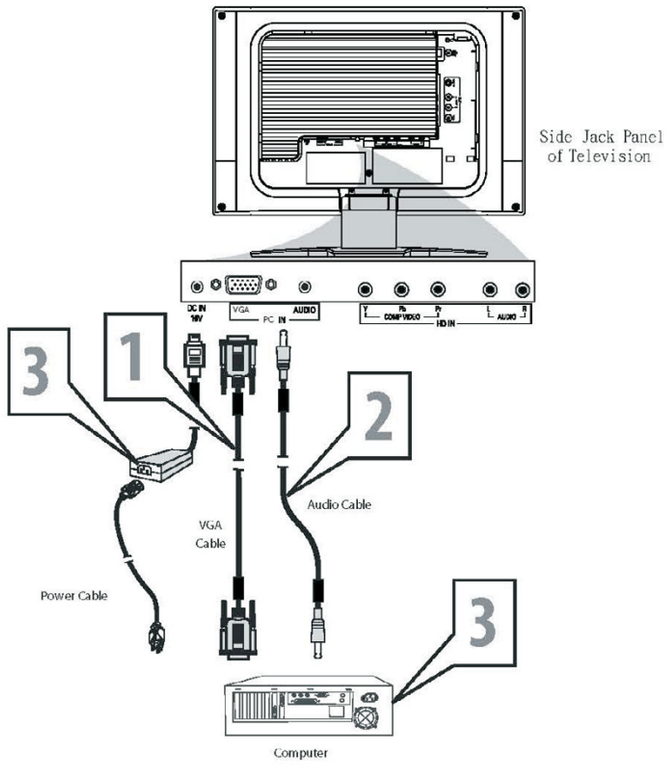
1. Connect the component (Y, Pb, Pr) Video OUT jacks from the DVD player(or similar device) to the COMP(onent) VIDEO Input jacks on the bottom of the LCD TV.
2. Connect the red and white AUDIO CABLES to the Audio (left ad right) output jacks on the rear of the accessory device to the AUDIO IN jack. Connect the other end of the cable to the Audio jack on the rear of LCD TV.
3. Plug the DC Adapter into the DC IN 16 V jack on the LCD TV. Plug the power cable into an outlet. Turn on the LCD TV and other equipment.
4. Press the SOURCE button on the remote control to select HD. HD will appear in the upper left corner on the TV screen.
5. Insert a DVD disc into the DVD player and press the PLAY button on the DVD Player.



PC (MONITOR) CONNECTION

This LCD TV can be used as a PC . Your computer will have to be Equipped with a VGA type video output and VGA cable.

1. Connect one end of the VGA Video cable (not supplied) to the Monitor(video) output on the computer, while connecting the other ends to the VGA INPUT jack on the LCD TV.
2. Although audio connections are not required, the LCD TV can Reproduce the computers audio out by an AUDIO ADAPTER to the Audio output jack on the computer (if available) while connecting the other ends of the Audio cables to the PC AUDIO Jacks on the bottom of the TV.
3. Plug the DC Adapter into the DC IN 16V jack on the LCD TV. Plug the power cable into an outlet. Turn on the LCD TV and PC.
4. Press the SOURCE button until PC MODE appears on the screen.



Go to cover page

On Screen Display

PC MODE			
1st Layer	2nd Layer	3rd Layer	
PICTURE			
	SMART PICTURE	NORMAL WARM COOL	
	BRIGHTNESS CONTRAST		
	AUTO ADJUST	YES IN PROGRESS STORE?	 YES NO
	MANUAL ADJUST	PHASE CLOCK HORIZONTAL VERTICAL	
AUDIO			
	SMART SOUND	PERSONAL NEWS MUSIC THEATRE	
	SETTINGS	TREBLE BASS BALANCE	
	STEREO	STEREO	
	VIRTUAL SURROUND	VIRTUAL SURROUND OFF	
	AVL	YES NO	
FEATURES			
	PIP	SIZE	OFF SMALL MEDIUM LARGE PBP
		VIDEO	TV AV S-VIDEO COMPONENT
		AUDIO	PC PIP
		DISPLAY	ICON1 ICON2 ICON3 ICON4
	SOURCE	PC TV AV S-VIDEO HD	
INSTALL			
	LANGUAGE	ENGLISH FRAN□ AIS ESPA□ OL	
	FACTORY RESET	YES?	

TV / AV/ S-VIDEO / HDTV MODE				
1st Layer	2nd Layer	3rd Layer	4th Layer	5th Layer
PICTURE				
	SMART PICTURE	PERSONAL MOVIES SPORTS WEAK SIGNAL MULTIMEDIA NIGHT		
	BRIGHTNESS CONTRAST COLOR SHARPNESS TINT			
AUDIO				
	SMART SOUND	PERSONAL NEWS MUSIC THEATRE		

On Screen Display

Go to cover page

AUDIO	SETTINGS	TREBLE				
		BASS				
		BALANCE				
	STEREO	STEREO				
		SAP				
		MONO				
	VIRTUAL SURROUND	VIRTUAL SURROUND				
		OFF				
	AVL	YES				
		NO				
FEATURES						
	SOURCE	PC				
		TV				
		AV				
		S-VIDEO				
		HD				
	PICTURE FORMAT	4:3				
		EXPAND 4:3				
		COMPRESS 16:9				
	PICTURE ALIGNMENT					
	AUTO LOCK	LOCK PROGRAM				
		CHANGE CODE	YES			
		CLEAR ALL	ON			
			OFF			
		BLOCK OPTION	ON			
			OFF			
		MOVIE RATING	G	ON/OFF		
			PG	ON/OFF		
			PG13	ON/OFF		
			R	ON/OFF		
			NC17	ON/OFF		
			X	ON/OFF		
		TV RATING	TV Y	ON/OFF		
			TV Y7		BLOCK	ON/OFF
					FV	ON/OFF
			TV G	ON/OFF		
			TV PG		BLOCK	ON/OFF
					V	ON/OFF
					S	ON/OFF
					L	ON/OFF
					D	ON/OFF
			TV 14		BLOCK	ON/OFF
					V	ON/OFF
					S	ON/OFF
					L	ON/OFF
					D	ON/OFF
			TV MA		BLOCK	ON/OFF
					V	ON/OFF
					S	ON/OFF
					L	ON/OFF
	CLOSED CAPTION	CAPTION MODE	CC1			
			CC2			
			CC3			
			CC4			
			TXT1			
			TXT2			
			TXT3			
			TXT4			
			CC MUTE			
		CC DISPLAY	ON			
			OFF			
INSTALL						
	LANGUAGE	ENGLISH				
		FRAN□AIS				
		ESPA□OL				
	TUNER MODE	ATENNA				
		CABLE				
		AUTO				
	AUTO PROGRAM	START?				
	CHANNEL EDIT	CHANNEL				
		SKIPPED	ACTIVE			
			SKIPPED			
	MANUAL FINE TUNE					
	FACTORY RESET	YES?				

Aging Mode

NO VIDEO INPUT

This screen appears if there is no video signal input. Please check that the signal is properly connected to the video card of PC and make sure PC is on

Access Aging.. Mode

Step 1 : Select the source "PC" and then turn off LCD-TV, and disconnect Interface Cable between Monitor and PC.
Step 2 : [Push "power " button and then push the "VOL- " and "VOL+" buttons at the same time immediately and hold it] untill comes out " AGING screen" then release all buttons.

Bring up:

After 55 seconds, bring up:

After 5 seconds, bring up:

After 55 seconds, bring up:

---
repeatly
Connect Signal cable again=> go back to normal display

Warning Message

Go to cover page

1.Automatic adjustment (for factory only)
Press Volume+ and Volume- on front key at the same time (PC mode only). It adjusts PC image to the best and save the screen automatically.
2. OUT OF RANGE
If PC input timing is out of range, it shows "OUT OF RANGE " warning message on the center of the screen. The range of horizontal frequency is between 14 - 63 KHz. The range of vertical frequency is between 45 - 76 Hz. The OSD won't timeout.
3.NO VIDEO INPUT
When PC input timing has either horizontal frequency or vertical frequency. Or neither has horizontal frequency nor vertical frequency. It shows on the center of the screen for 30 seconds, then it will enter sleep mode.

Factory Mode

Access factory. Mode
how to get into factory mode menu
Step 1 : Select the source "PC" and then turn off LCD-TV.

Step 2 : [Push "power " button and then push the "VOL- " and "VOL+" buttons at the same time immediately and hold it] about five seconds then release all buttons.

Press "menu"button and bring up factory mode indication as shown in Fig.1

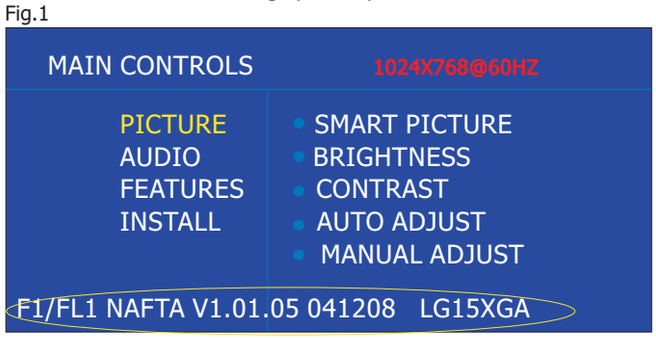


Fig.1

Use the CHNNEL- and CHNNEL+ to select the "F1/FL1 NAFTA V1.01. 05 041208 LG15XGA" and then press the "VOL +" button

Menu Item	Description
Scalar Gain R G B	Scalar Gain for Normal/Warm/Cool in PC mode.
Auto-Color	Adjust color from received signal (either in PC or HDTV mode).
ADC Offset R G B	Adjust AD 9883 for PC ADC offset.
ADC Gain R G B	Adjust AD 9883for PC ADC gain.
PC Offset R G B	PC analog scalar offset.
711X SDTV Brightness	Adjust SA 7119 SDTV brightness.
711X SDTV SAT.	Adjust SA 7119 SDTV saturation.
711X SDTV Contrast	Adjust SA 7119 SDTV contrast.
711X SDTV TINT	Adjust SA 7119 SDTV tint (hue).
TV Shift H V	Adjust TV screen position horizontally/vertically.
HD Shift H V	Adjust HDTV screen position horizontally/vertically.
Show Lock Message	Show OSD lock message.
HDTV ADC Offset R G B	Adjust AD 9883 for HDTV ADC offset.
HDTV ADC Gain R G B	Adjust AD 9883 for HDTV ADC gain.
Video Scalar Gain R G B	Adjust scalar gain for Video mode.
Scalar Hue	Adjust scalar hue.

Trouble shooting

Go to cover page

No Power
.Check the TV power cord. Disconnect the power cord from the power outlet for 10 seconds, then reinsert the plug into the outlet. Press POWER to turn on the TV again.
.Make sure the outlet is not on a wall switch.
.Make sure a fuse has not blown at the power outlet.

No Picture
.Check the antenna or Cable TV connections. Connect the antenna or Cable TV signal securely to the TV's 75ohm jack on the rear of the TV.
.Set TUNER MODE correctly. Details are on page 15.
.Activate AUTO PROGRAM to find all available channels.
In case you hear only sound and don't see any picture in S-Video or Video (CVBS) mode. Please check if you have connected Video signal to S-Video or Video (CVBS) input. Only one of the two video inputs can be connected to sound. This means that the same sound can be heared in S-Video and Video (CVBS) mode.

No Sound
.Press the VOL+ and VOL- buttons to adjust the volume.
.Press the MUTE button on the remote control to cancel or restore the volume.
.If you have connected other equipment to the TV (such as a VCR or DVD Player), make sure the audio cables are connected securely between the TV and the other equipment.
.Check the SOUND settings.
.In case you hear wrong sound in S-Video or Video (CVBS) mode. Please check if you have connected the right sound signal to AV in (S-Video or Video input). Only one of the two video inputs can be connected to sound, but both video signals can be connected. This means that only one of the two sound inputs can be heared in S-Video and Video (CVBS) mode.

Remote Control does not work.
.Check the batteries. If necessary, replace them with two AAA heavy duty (zinc chloride) or alkaline batteries.
.Clean the remote control as well as the remote control sensor on the front of the TV.
.Check the TV power cord. Disconnect the power cord from the power outlet for 10 seconds, then reinsert the plug into the outlet. Press POWER to turn on the TV again.
.Make sure the outlet is not on a wall switch.
.Make sure a fuse has not blown at the power outlet.
.Always point the remote control toward the front of the TV (toward the remote sensor).
.Make sure that you use the supplied Magnavox Remote control, only the supplied Magnavox Remote control can be used with this LCD-TV set.

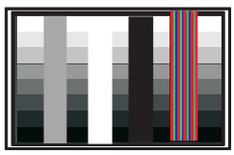
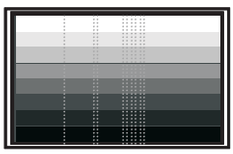
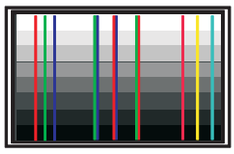
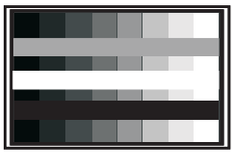
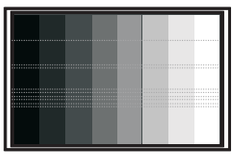
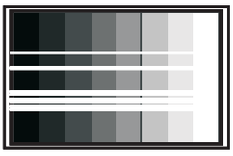
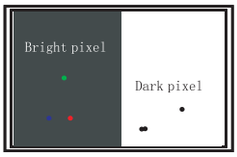
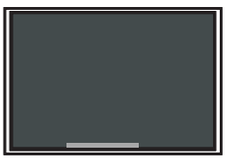
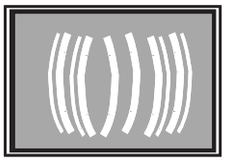
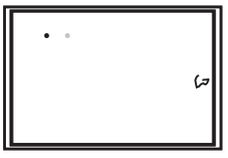
TV displays wrong channel or no channels.
.Repeat channel selection.
.Add the channel number(s) into the TV's memory. Use STORE.
.Make sure TUNER MODE is set correctly.
Then activate AUTO PROGRAM to set up all available channels.

Go to cover page

Failure Mode Of Panel

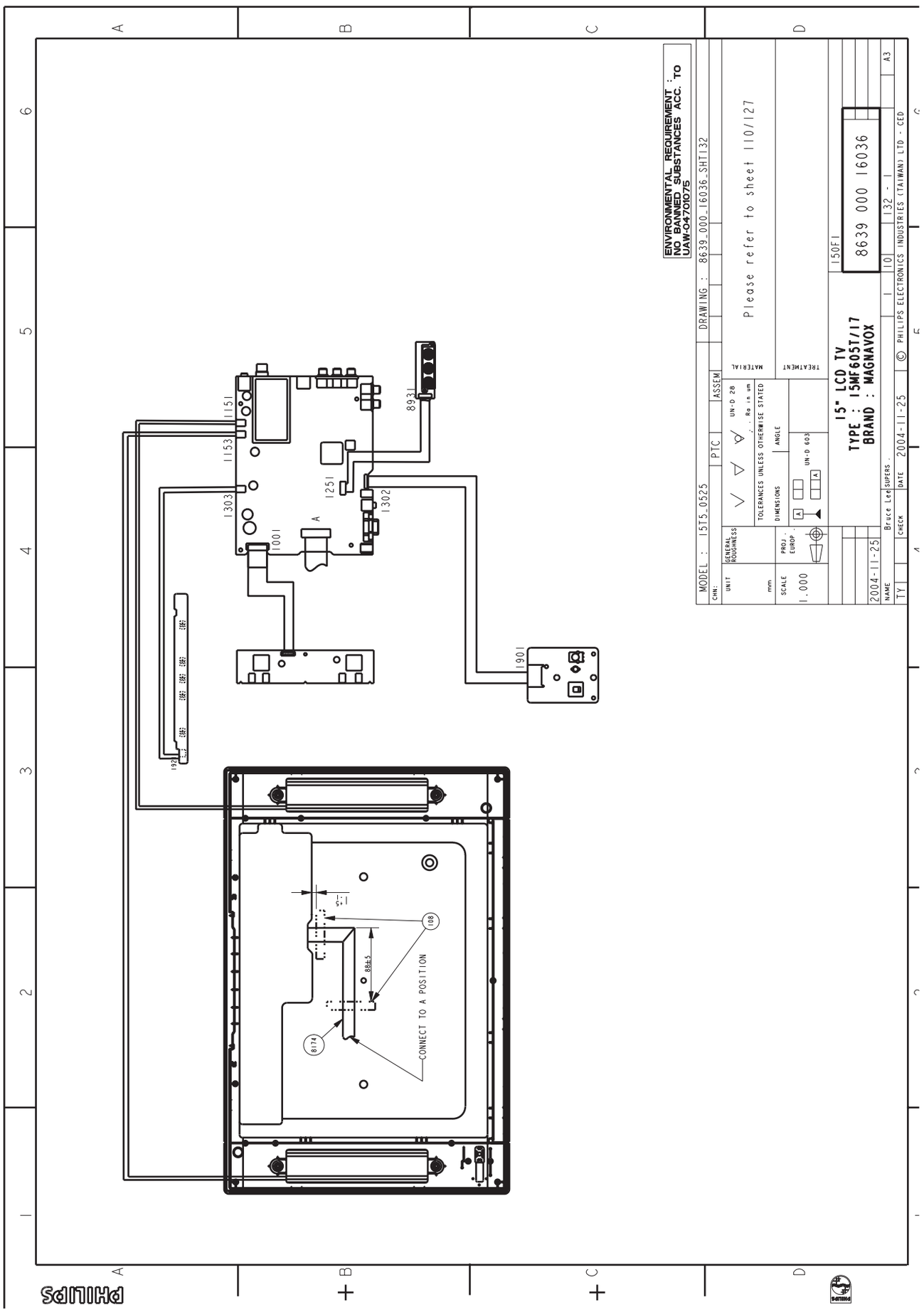
Quick reference for failure mode of LCD panel

this page presents problems that could be made by LCD panel.
It is not necessary to repair circuit board. Simply follow the mechanical instruction on this manual to eliminate failure by replace LCD panel.

Failure description	Phenomenon
Vertical block defect	
Vertical dim lines	
Vertical lines defect (Always bright or dark)	
Horizontal block defect	
Horizontal dim lines	
Horizontal lines defect (Always bright or dark)	
Has bright or dark pixel	
Polarizer has bubbles	
Polarizer has bubbles	
Foreign material inside polarizer. It shows liner or dot shape.	
Concentric circle formed	
Bottom back light of LCD is brighter than normal	
Back light un-uniformity	
Backlight has foreign material. Black or white color, liner or circular type	

Wiring diagram

Go to cover page



Front view

Fig.1

Back view, remove the cover as Fig.2

Fig.2

Remove the base:
unscrew the screws as Fig.3

Fig.3

Remove the back cover,
unscrew the screws as Fig.4 and the open the clicks and then remove the back cover as Fig.5 Fig.6 Fig.7

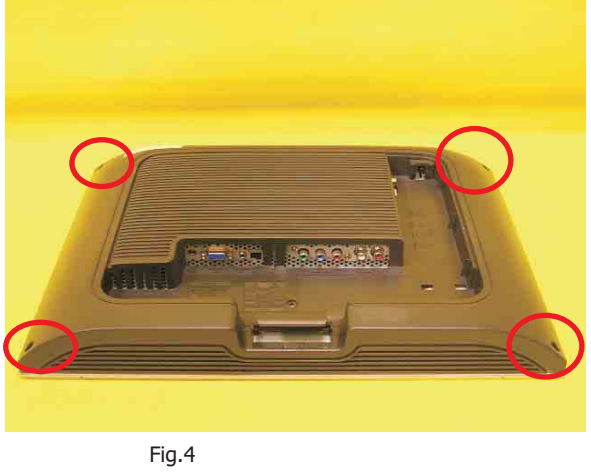


Fig.4

Fig.5

Fig.6

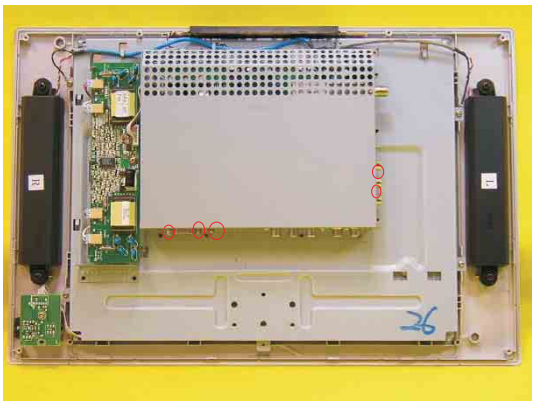


Fig.7

Remove the Matel frame board

- Remove the five screws
- Remove the matel frame board as shown in Fig.8

Fig.8

Remove the inverter board ,YPbPr-in and scaler board
unscrew the screws and disconnect the connector as shown in Fig.9

Mechanical Instructions

Go to cover page

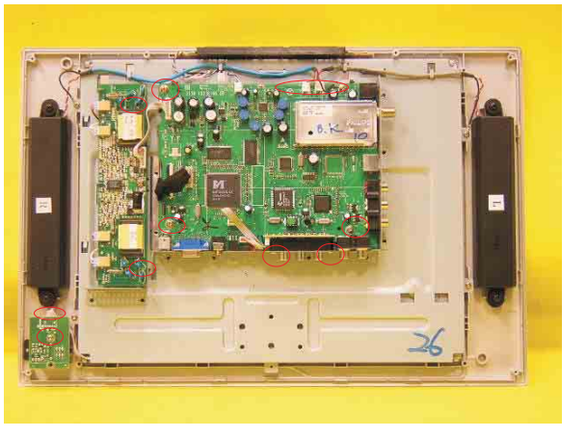


Fig.9

Fig.10

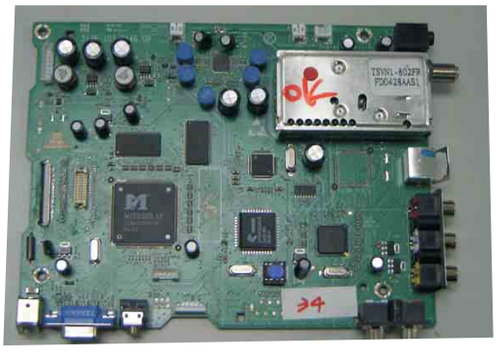


Fig.11

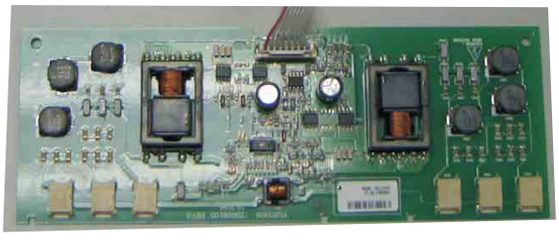


Fig.12

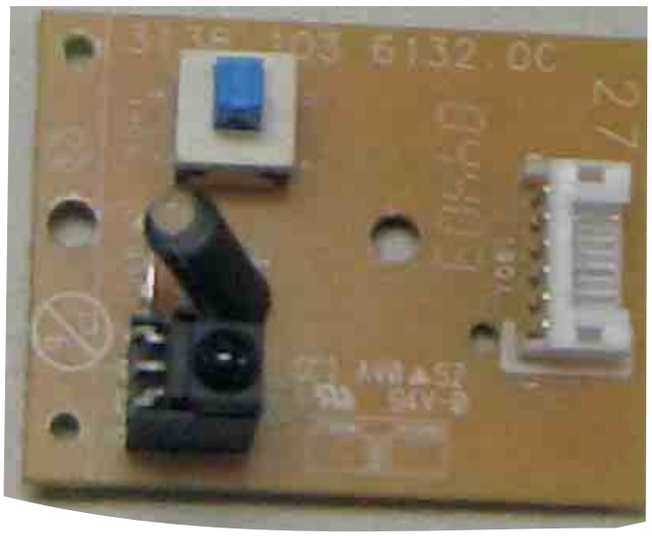


Fig.13

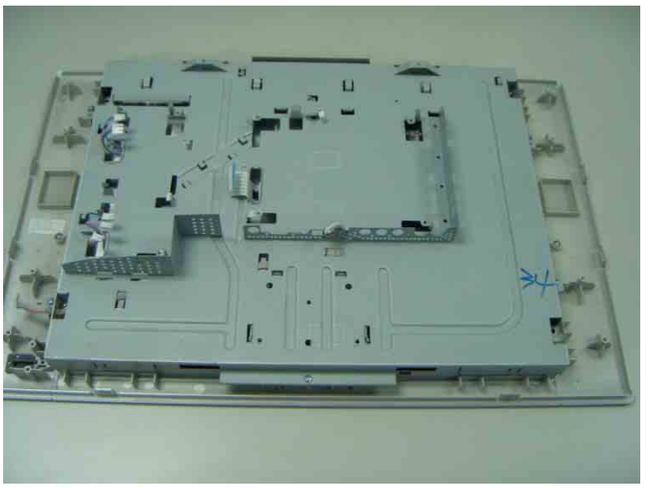


Fig.14

1.General points

1.1 During the test and measuring, supply a distortion free AC mains Voltage to the apparatus via an isolated transformer with low Internal resistance.

1.2 All measurements mentioned hereafter are carried out at a normal mains voltage (90 - 132 VAC for USA version, 195 -264 VAC for EUROPEAN version, or 90 - 264 VAC for the model with full range power supply, unless otherwise stated.)

1.3 All voltages are to be measurement or applied with respect to ground, unless otherwise stated.

1.4 The test has to be done on a complete set including LCD panel in a room with temperature of 25 +/- 5 degree C.

1.5 All values mentioned in these test instruction are only applicable of a Well aligned apparatus, with correct signal.

1.6 The letters symbols (B) and (S) placed behind the test instruction Denotes (B): carried out 100% inspection at assembly line
(S): carried out test by sampling

1.7 The white balance (color temperature), has to be tested in subdued Lighted room.

1.8 Repetitive power on/off cycle are allowed except it should be avoided within 6 sec.

2. Input signal

2.1.1 PC Signal type

Analog Video : 0.7 Vp-p linear, positive polarity

Separate Sync. : TTL level, separate, positive or negative polarity

Audio signal : Mini-jack audio input

Input level: 500 mVrms ((Speaker outpout 3W when Input level > 630mVrms and Volume control at 100%))

Signal source: pattern generator format as attachment

(table 1 to 11) Reference generator : CHROMA 2200 or 2250

2.1.2 TV Signal type

RF Signal : Aerial input, NTSC cable and antenna system.

Video signal : Cinch input, CVBS with NTSC and PAL system.
Level: 1.0Vp-p (0.7V video + 0.3V sync.)
S video input: Y/C signal, NTSC and PAL system.
Level: Y: 1.0Vp-p (0.7V video + 0.3V sync.)
C: +/- 0.3V.

Component input: Cinch G/B/R-> YPbPr cinch input.
Level: Y: 1.0Vp-p Pb/Pr: +/- 0.35V

Audio signal : Side cinch R/L for CVBS and S-video
Bottom cinch R/L for component input.

Input level: 500 mVrms ((Speaker outpout 3W when Input level > 630mVrms and Volume control at 100%))

2.2 PC Input signal mode
PRE-LOAD VIDEO RESOLUTION

Mode 3, 6, 7, 10 are preset modes that should pass QA inspection. Mode 1, 2, 4, 5, 8, 9, 11 will run auto adjustment only, and W/O QA checking.

	Dot rate (MHz)	H.freq (KHz)	Mode	Resolution	V.freq (Hz)
1	25.175	31.469	IBM VGA	640 * 350	70.087
2	28.322	31.469	IBM VGA	720 * 400	70.087
3	25.175	31.469	IBM VGA	640 * 480	59.940
4	30.240	35.000	MACINTOSH	640 * 480	66.667
5	31.500	37.500	VESA	640 * 480	75.000
6	36.000	35.156	VESA	800 * 600	56.250
7	40.000	37.879	VESA	800 * 600	60.317
8	49.500	46.875	VESA	800 * 600	75.000
9	57.300	49.700	MACINTOSH	832 * 624	75.000
10	65.000	48.363	VESA	1024 * 768	60.004
11	78.750	60.023	VESA	1024 * 768	75.029

2.3 TV input signal Channel and pattern for Nafta model (Table1)
Signal Distribution Table (NTSC)

CH	Frequency Carriers		TV System	Pattern
	Video	Sound		
A 03	61.25MHz	65.75MHz	NTSC M	Color Circle
A 06	83.25MHz	87.75MHz	NTSC M	Red Raster
A 09	187.25MHz	191.75MHz	NTSC M	Circle Pattern
A 11	199.25MHz	203.75MHz	NTSC M	Cross Hatch
A 13	211.25MHz	215.75MHz	NTSC M	Two White Window
A 52	699.25MHz	703.75MHz	NTSC M	Color Bar
A 69	801.25MHz	805.75MHz	NTSC M	100% White
C 70	499.25MHz	503.75MHz	NTSC M	Checkerboard

Table 1

3. TV mode display adjust ment

3.1 White balance adjustment (B)

General set-up :

Equipment Requirements: Color analyzer.

Input requirements:

Input Signal Type : CVBS-NTSC signal.
Frequency = 187.25 MHz (CH. 9).

Alignment method:

Initial Set-up :

Set TV (7119) Brightness=124; Contrast=64, Saturate= 70 in Factory mode (can be fine tuned)

Set Smart picture as "Personal "(Brightness=50, Color=50, Contrast=50)

Apply" 100% Full White/100IRE" pattern by TV pattern generator.

Alignment : Adjust the VIDEO SCALER GAIN R G B in Factory Mode
NORMAL . (See Fig 1.)

[Enter factory menu : press Volume - and Volume + keys together around six seconds]

The 1931 CIE chromaticity (X, Y) co-ordinates shall be:

Picture Mode	X	y
Normal (Original)	0.289 ± 0.005	0.304 ± 0.005

Table3.1: Readings with Minolta CA110.

FACTORY ADJUST MENU

NORMAL

SCALER GAIN R G B
AUTO-COLOR (OK)
ADC OFFSET R G B
ADC GAIN R G B
PC OFFSET R G B
7119 SDTV SAT TINT
TV SHIFT H V
HD SHIFT H V
SHOW LOCK MESSAGE
HDTV ADC OFFSET R G B
HDTV ADC GAIN R G B
VIDEO SCALER GAIN R G B
SCALER HUE
EXIT Value

Fig.1

4. PC mode display adjustment

4.1 Display quality adjustment

Use timing mode as describe in 2.2, and use the POPO (pixel on pixel off) pattern to adjust the clock until no stripe and adjust the phase until clear picture.(AUTO ADJUST hot key press Volume- and Volume+ keys together for 1 second.)

Check all preset 4 modes.

4.2 WHITE-D adjustment (B)

4.2.1 At factory mode apply 1024X768/60Hz mode with 64 gray pattern.

Set main controls Brightness at 50% and Contrast to 50%.

Select AUTO-COLOR function for ADC OFFSET and ADC GAIN setup.

4.2.2 Set smart picture as "NORMAL"

Set SCALER GAIN R G B= VIDEO SCALER GAIN R G B (alignment done).

The 1931 CIE chromaticity (X, Y) coordinates shall be:

	Normal/ (8500°K)
x (center)	0.289 ± 0.030
y (center)	0.304 ± 0.030

Readings with Minolta CA-110.

4.2.3 Set Smart picture as WARM , and COOL The SCALER GAIN RG B =

.

	Normal/ the R\G\B□ are gain after alignment.	WARM	COOL
R gain	R'	R'	R'-10
G gain	G'	G'-10	G'-10
B gain	B '	B'-10	B'

4.3 Check the analog interface cable

Check the color poor & noise condition of 64 gray pattern.

5. HDTV mode display adjust ment

5.1 White balance adjustment (B)

General set-up:

Equipment : Quantum Data Pattern Generator 801GD or 802G.
Apply 1080i, RGBW gray pattern.

(Or FLUKE 54200, apply 576i, DIGITAL SCAN/DIGI_ADC1 pattern.)

Alignment method:

Initial Set-up : Set Smart picture as Personal, Brightness=50, Color=50, Contrast=50 Set AUTO-COLOR process.

Alignments :Check chromaticity (X, Y) coordinates specification:

Picture Mode	x	y
Personal	0.289 ± 0.020	0.304 ± 0.020

If out of specification, fine-tune HDTV ADC Gain in factory mode.

6. Preset EEPROM data

6.1 EEPROM data has to be preset data according following table.

Factory mode preset.

Function		Preset value	
SCALER GAIN		127 127 127	
ADC Offset R/G/B		127 127 127	
ADC Gain R/G/B		127 127 127	
PC OFFset R/G/B		127 127 127	
7119 brightness		124 (TV,AV,S-video,HD)	
7119 Saturation		64 (TV,AV,S-video,HD)	
7119 contrast		70 (TV,AV,S-video,HD)	
7119 TINT		24 (TV,AV,S-video,HD)	
		NTSC	PAL
TV shift H	Regular	170	181
TV shift V		20	22
HD SHIFT H HD SHIFT V		See below.	
HD ADC OFFset R G B		127 127 127	
HD ADC GAIN R G B		127 127 127	
Video Scaler Gain		127 127 127	
Scaler Hue		50	

Factory mode:

	480 i	480 P	576 i	576 P	720P/50 Hz	720P/60 Hz	1080i/50 Hz	1080i/ 60Hz
HD shift H	153	153	166	166	110	144	82	82
HD shift V	39	43	50	53	42	39	59	61

In user Picture alignment

	480 i	480 P	576 i	576 P	720P/50 Hz	720P/ 60Hz	1080i/ 50Hz	1080i/60 Hz
HD shift H	62	62	59	59	9	0	16	16

6.2 Smart picture &Smart sound:
6.2.1 Final TV mode out box setting.
Smart Picture : Sport

Smart Picture

PERSONAL	BRIGHTNESS	50
	COLOR	50
	CONTRAST	50
	SHARPNESS	25
	TINT	50
MOVIES	BRIGHTNESS	46
	COLOR	60
	CONTRAST	55
	SHARPNESS	25
	TINT	50
SPORTS	BRIGHTNESS	50
	COLOR	65
	CONTRAST	46
	SHARPNESS	36
	TINT	50
WEAK SIGNAL	BRIGHTNESS	45
	COLOR	30
	CONTRAST	40
	SHARPNESS	15
	TINT	50
MULTIMEDIA	BRIGHTNESS	50
	COLOR	58
	CONTRAST	60
	SHARPNESS	20
	TINT	50
NIGHT	BRIGHTNESS	50
	COLOR	55
	CONTRAST	45
	SHARPNESS	20
	TINT	50

Smart Sound : Personal
SOUND VOLUME : 15
BASE : 50
TREBLE : 50
Balance : 0
Virtuel SURROUND: OFF
AVL : NO

Smart sound

PERSONAL	TREBLE	50
	BASS	50
	BALANCE	0
NEWS	TREBLE	45
	BASS	60
	BALANCE	0
MUSIC	TREBLE	65
	BASS	60
	BALANCE	0
THEATRE	TREBLE	70
	BASS	70
	BALANCE	0

TIMING FOR F1 15" TFT XGA COLOR LCD MONITOR
(VESA monitor timing standard Version 1.0 Release 0.7)
REFERENCE PATTERN GENERATOR : CHROMA 2200 or2250
TABLE 1: 31.469 KHz/70.087Hz, 640 X 350, pixel=25.175 MHz

Horizontal	Vertical
Frame border=0	Frame border=0
Total size =31.778 μs	Total size =14.268 ms
Display size=25.422 μs	Display size=11.122 ms
Rear porch= 1.907 μs	Rear porch= 1.907 ms
Sync width= 3.813 μs	Sync width= 0.064 ms
Sync polarity=+	Sync polarity= –

TABLE 2: 31.469 KHz/70.087Hz, 7 20 X 400, pixel=28.322 MHz

Horizontal	Vertical
Frame border=0	Frame border= 0
Total size =31.778 μs	Total size =14.268 ms
Display size=25.422 μs	Display size=12.711 ms
Rear porch= 1.907 μs	Rear porch= 1.112 ms
Sync width= 3.813 μs	Sync width= 0.064 ms
Sync polarity=–	Sync polarity=+

TABLE 3: 31.469 KHz/59.940Hz, 640 X 480, pixel=25.175 MHz

Horizontal	Vertical
Frame border=0	Frame border=0
Total size =31.778 μs	Total size =16.683 ms
Display size=25.422 μs	Display size=15.253 ms
Rear porch= 1.907 μs	Rear porch= 1.049 ms
Sync width= 3.813 μs	Sync width= 0.064 ms
Sync polarity=–	Sync polarity=–

TABLE 4: 35.000 KHz/66..667Hz, 640 X 480, pixel=30.240 MHz

Horizontal	Vertical
Frame border=0	Frame border=0
Total size =28.571 μs	Total size =15.000 ms
Display size=21.164 μs	Display size=13.714 ms
Rear porch= 3.175 μs	Rear porch= 1.114 ms
Sync width= 2.116 μs	Sync width= 0.086 ms
Sync polarity=–	Sync polarity=–

Electrical instruction

Go to cover page

TABLE 5: 37.500 KHz/75.000Hz, 640 X 480, pixel=31.500 MHz

Horizontal	Vertical
Frame border=0	Frame border=0
Total size=26.667 µs	Total size=13.333 ms
Display size=20.317µs	Display size=12.800 ms
Rear porch= 3.810µs	Rear porch= 0.427 ms
Sync width= 2.032 µs	Sync width= 0.080 ms
Sync polarity=-	Sync polarity=-

TABLE 6: 35.156 KHz/56.250Hz, 800 X 600, pixel=36.000 MHz

Horizontal	Vertical
Frame border=0	Frame border=0
Total size=28.444 µs	Total size=17.778 ms
Display size=22.222µs	Display size=17.067 ms
Rear porch= 3.556µs	Rear porch= 0.626 ms
Sync width= 2.000µs	Sync width= 0.057 ms
Sync polarity=+	Sync polarity=+

TABLE 7: 37.879 KHz/60.317Hz, 800 X 600, pixel=40.000 MHz

Horizontal	Vertical
Frame border=0	Frame border=0
Total size=26.400 µs	Total size=16.579 ms
Display size=20.000µs	Display size=15.840 ms
Rear porch= 2.200µs	Rear porch= 0.607 ms
Sync width= 3.200µs	Sync width= 0.106 ms
Sync polarity=+	Sync polarity=+

TABLE 8: 46.875 KHz/75.000Hz, 800 X 600, pixel=49.500 MHz

Horizontal	Vertical
Frame border=0	Frame border=0
Total size=21.333 µs	Total size=13.333 ms
Display size=16.162µs	Display size=12.800 ms
Rear porch= 3.232µs	Rear porch= 0.448 ms
Sync width= 1.616µs	Sync width= 0.064 ms
Sync polarity=+	Sync polarity=+

TABLE 9: 49.722 KHz/74.546Hz, 832 X 624, pixel=57.280 MHz

Horizontal	Vertical
Frame border=0	Frame border=0
Total size=20.110 µs	Total size=13.410 ms
Display size=14.520µs	Display size=12.550 ms
Rear porch= 3.910µs	Rear porch= 0.784 ms
Sync width= 1.117µs	Sync width= 0.060 ms
Sync polarity=+	Sync polarity=+

TABLE 10: 48.363 KHz/60.004Hz, 1024 X 768, pixel=65.000 MHz

Horizontal	Vertical
Frame border=0	Frame border=0
Total size=20.677 µs	Total size=16.666 ms
Display size=15.754µs	Display size=15.880 ms
Rear porch= 2.462µs	Rear porch= 0.600 ms
Sync width= 2.092µs	Sync width= 0.124 ms
Sync polarity=-	Sync polarity=-

TABLE 11: 60.023 KHz/75.029Hz, 1024 X 768, pixel=78.750 MHz

Horizontal	Vertical
Frame border=0	Frame border=0
Total size=16.660 µs	Total size=13.328 ms
Display size=13.003µs	Display size=12.795 ms
Rear porch= 2.235µs	Rear porch= 0.466 ms
Sync width= 1.219µs	Sync width= 0.050 ms
Sync polarity=+	Sync polarity=+

Display adjustment

Access factory. Mode
how to get into factory mode menu
Step 1 : Select the source "PC" and then turn off LCD-TV.

Step 2 : [Push "power " button and then push the "VOL- " and "VOL+" buttons at the same time immediately and hold it] about five seconds then release all buttons.

Press "menu"button and bring up factory mode indication as shown in Fig.1

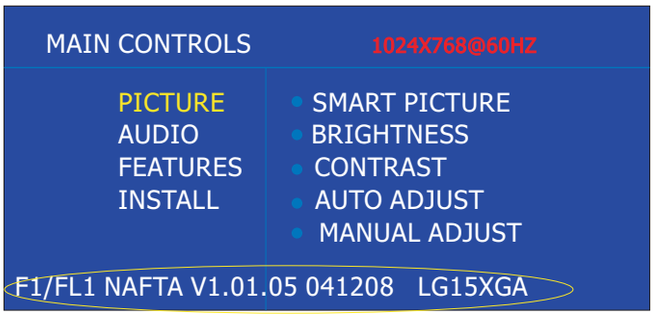


Fig. 1

Use the CHNNEL- and CHNNEL+ to select the "F1/FL1 NAFTA V1.01. 05 041208 LG15XGA" and then press the "VOL +" button

Fig.2

PC mode WHITE-D adjustment (B)

1 Apply 1024X768/60Hz mode with 5 block pattern as Fig 3. Set main controls brightness control at 50% and contrast to 50% on User mode. Set color setting at natural color on User mode. Move cursor to "AUTO-color" item on factory mode, press "menu" key to active this function, then scaler will adjust RGB and Color RGB automatically by it self.

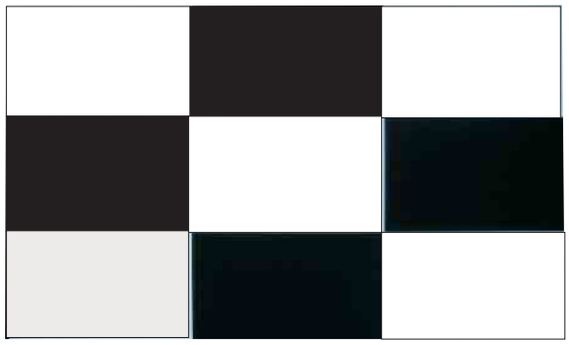


Fig.3

2. Apply a 1024x768/60Hz signal with white pattern.Set brightness control at 50% and contrast control at 50%. Adjust the R.G.B gain to reach special color temperature on center of screen.

2.1 Aim the probe CA-A30 at the center of screen as Fig. 4

2.2 Remove the lens protective cover of probe CA-A30.

2.3 Set Measuring/viewing selector to Measuring position for reset analyzer. (Zero calibration) as Fig. 5

2.4 Turn on the colour analyzer (CA-110).

2.5 Press 0-CAL button to start reset analyzer. See Fig. 6

Fig.4

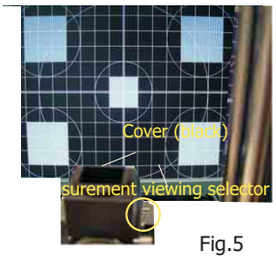


Fig.5

Fig.6

2.6 Switch light probe to Viewing position.

2.7 Move the Lens barrel forward or backward to get clear image as shown in Fig. 7

2.8 Switch light probe to Measuring position. It should be able to indicate colour value on the CA-110.

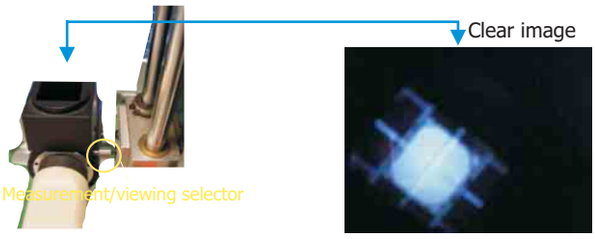


Fig.7

Display Adjustment

Go to cover page

2.9 Set smart picture as "NORMAL"

Set SCALER GAIN R G B = VIDEO SCALER GAIN R G B(alignment done).

The 1931 CIE chromaticity (X, Y) co-ordinates shall be:

	Normal/ (8500°K)
x (center)	0.289 ± 0.030
y (center)	0.304 ± 0.030

Readings with Minolta CA-110.

2.10 Set Smart picture as "WARM", and "COOL" The SCALER GAIN R G B =

	Normal/ the R'\G'\B' are gain after alignment.	WARM	COOL
R gain	R'	R'	R'-10
G gain	G'	G'-10	G'-10
B gain	B'	B'-10	B'

DDC DATA

LPL panel:
****
EDID log file
****

Vendor/Product Identification
- ID Manufacturer Name : PHL
- ID Product Code : 4650 (HEX.)
- ID Serial Number : 1010101 (HEX.)
- Week of Manufacture : 0
- Year of Manufacture : 2004

EDID Version, Revision
- Version : 1
- Revision : 3

Basic Display Parameters/Features
- Video Input Definition : Analog Video Input
  0.700V/0.300V (1.00Vpp)
  without Blank-to-Black Setup
  Separate Sync
  without Composite Sync
  without Sync on Green
  no Serration required
- Maximum H Image Size : 30
- Maximum V Image Size : 23
- Display Transfer Characteristic : 2.2 (gamma)
- Feature Support (DPMS) : Standby
  Suspend
  Active Off
- Display Type : RGB color display
- Standard Default Color Space : Primary color space
- Preferred Timing Mode : Detailed timing block 1

Color Characteristics
- Red X coordinate : 0.619
- Red Y coordinate : 0.343
- Green X coordinate : 0.298
- Green Y coordinate : 0.578
- Blue X coordinate : 0.149
- Blue Y coordinate : 0.082
- White X coordinate : 0.289
- White Y coordinate : 0.304

Established Timings
- Established Timings I : 640 x 480 @60Hz (IBM,VGA)
  800 x 600 @56Hz (VESA)
  800 x 600 @60Hz (VESA)
- Established Timings II : 1024 x 768 @60Hz (VESA)
- Manufacturer's timings :

Standard Timing Identification : Unused

Monitor Descriptor #1
- Serial Number :

Monitor Descriptor #2
- Serial Number :

Monitor Descriptor #3
- Monitor Name : Philips F1 15

Monitor Descriptor #4
- Monitor Range Limits
- Min. Vt rate Hz : 58
- Max. Vt rate Hz : 62
- Min. Horiz. rate kHz : 30
- Max. Horiz. rate kHz : 49
- Max. Supported Pixel : 70

No secondary GTF timing formula supported.

Extension Flag : 0

Check sum : F8 (HEX.)

****
EDID data (128 bytes)
****

0: 00	1: ff	2: ff	3: ff	4: ff	5: ff	6: ff	7: 00
8: 41	9: 0c	10: 50	11: 46	12: 01	13: 01	14: 01	15: 01
16: 00	17: 0e	18: 01	19: 03	20: 08	21: 1e	22: 17	23: 78
24: ee	25: b4	26: 43	27: 9e	28: 57	29: 4c	30: 94	31: 26
32: 15	33: 4a	34: 4d	35: 23	36: 08	37: 00	38: 01	39: 01
40: 01	41: 01	42: 01	43: 01	44: 01	45: 01	46: 01	47: 01
48: 01	49: 01	50: 01	51: 01	52: 01	53: 01	54: 00	55: 00
56: 00	57: ff	58: 00	59: 0a	60: 20	61: 20	62: 20	63: 20
64: 20	65: 20	66: 20	67: 20	68: 20	69: 20	70: 20	71: 20
72: 00	73: 00	74: 00	75: ff	76: 00	77: 0a	78: 20	79: 20
80: 20	81: 20	82: 20	83: 20	84: 20	85: 20	86: 20	87: 20
88: 20	89: 20	90: 00	91: 00	92: 00	93: fc	94: 00	95: 50
96: 68	97: 69	98: 6c	99: 69	100: 70	101: 73	102: 20	103: 46
104: 31	105: 20	106: 31	107: 35	108: 00	109: 00	110: 00	111: fd
112: 00	113: 3a	114: 3e	115: 1e	116: 31	117: 07	118: 00	119: 0a
120: 20	121: 20	122: 20	123: 20	124: 20	125: 20	126: 00	127: f8

Go to cover page

DDC DATA

AUO panel:

****
EDID log file
****

Vendor/Product Identification
- ID Manufacturer Name : PHL
- ID Product Code : 4650 (HEX.)
- ID Serial Number : 1010101 (HEX.)
- Week of Manufacture : 0
- Year of Manufacture : 2004

EDID Version, Revision
- Version : 1
- Revision : 3

Basic Display Parameters/Features
- Video Input Definition : Analog Video Input
  0.700V/0.300V (1.00Vpp)
  without Blank-to-Black Setup
  Separate Sync
  without Composite Sync
  without Sync on Green
  no Serration required
- Maximum H Image Size : 30
- Maximum V Image Size : 23
- Display Transfer Characteristic : 2.4 (gamma)
- Feature Support (DPMS) : Standby
  Suspend
  Active Off
- Display Type : RGB color display
- Standard Default Color Space : Primary color space
- Preferred Timing Mode : Detailed timing block 1

Color Characteristics
- Red X coordinate : 0.604
- Red Y coordinate : 0.347
- Green X coordinate : 0.283
- Green Y coordinate : 0.583
- Blue X coordinate : 0.147
- Blue Y coordinate : 0.088
- White X coordinate : 0.279
- White Y coordinate : 0.291

Established Timings
- Established Timings I : 640 x 480 @60Hz (IBM,VGA)
  800 x 600 @56Hz (VESA)
  800 x 600 @60Hz (VESA)
- Established Timings II : 1024 x 768 @60Hz (VESA)
- Manufacturer's timings :

Standard Timing Identification : Unused

Monitor Descriptor #1
- Serial Number :

Monitor Descriptor #2
- Serial Number :

Monitor Descriptor #3
- Monitor Name : Philips F1 15

Monitor Descriptor #4
- Monitor Range Limits
- Min. Vt rate Hz : 58
- Max. Vt rate Hz : 62
- Min. Horiz. rate kHz : 30
- Max. Horiz.rate kHz : 49
- Max. Supported Pixel : 70

No secondary GTF timing formula supported.

Extension Flag : 0

Check sum : 44 (HEX.)

****
EDID data (128 bytes)
****

0: 00	1: ff	2: ff	3: ff	4: ff	5: ff	6: ff	7: 00
8: 41	9: 0c	10: 50	11: 46	12: 01	13: 01	14: 01	15: 01
16: 00	17: 0e	18: 01	19: 03	20: 08	21: 1e	22: 17	23: 8c
24: ee	25: b9	26: ea	27: 9a	28: 58	29: 48	30: 95	31: 25
32: 16	33: 47	34: 4a	35: 23	36: 08	37: 00	38: 01	39: 01
40: 01	41: 01	42: 01	43: 01	44: 01	45: 01	46: 01	47: 01
48: 01	49: 01	50: 01	51: 01	52: 01	53: 01	54: 00	55: 00
56: 00	57: ff	58: 00	59: 0a	60: 20	61: 20	62: 20	63: 20
64: 20	65: 20	66: 20	67: 20	68: 20	69: 20	70: 20	71: 20
72: 00	73: 00	74: 00	75: ff	76: 00	77: 0a	78: 20	79: 20
80: 20	81: 20	82: 20	83: 20	84: 20	85: 20	86: 20	87: 20
88: 20	89: 20	90: 00	91: 00	92: 00	93: fc	94: 00	95: 50
96: 68	97: 69	98: 6c	99: 69	100: 70	101: 73	102: 20	103: 46
104: 31	105: 20	106: 31	107: 35	108: 00	109: 00	110: 00	111: fd
112: 00	113: 3a	114: 3e	115: 1e	116: 31	117: 07	118: 00	119: 0a
120: 20	121: 20	122: 20	123: 20	124: 20	125: 20	126: 00	127: 44

DDC DATA

9.3 CPT panel:

****
EDID log file
****

Vendor/Product Identification
- ID Manufacturer Name : PHL
- ID Product Code : 4650 (HEX.)
- ID Serial Number : 1010101 (HEX.)
- Week of Manufacture : 0
- Year of Manufacture : 2004

EDID Version, Revision
- Version : 1
- Revision : 3

Basic Display Parameters/Features
- Video Input Definition : Analog Video Input
  0.700V/0.300V (1.00Vpp)
  without Blank-to-Black Setup
  Separate Sync
  without Composite Sync
  without Sync on Green
  no Serration required
- Maximum H Image Size : 30
- Maximum V Image Size : 23
- Display Transfer Characteristic (gamma) : 2.3
- Feature Support (DPMS) : Standby
  Suspend
  Active Off
- Display Type : RGB color display
- Standard Default Color Space : Primary color space
- Preferred Timing Mode : Detailed timing block 1

Color Characteristics
- Red X coordinate : 0.643
- Red Y coordinate : 0.335
- Green X coordinate : 0.297
- Green Y coordinate : 0.588
- Blue X coordinate : 0.142
- Blue Y coordinate : 0.078
- White X coordinate : 0.313
- White Y coordinate : 0.329

Established Timings
- Established Timings I : 640 x 480 @60Hz (IBM,VGA)
  800 x 600 @56Hz (VESA)
  800 x 600 @60Hz (VESA)
- Established Timings II : 1024 x 768 @60Hz (VESA)
- Manufacturer's timings :

Standard Timing Identification : Unused

Monitor Descriptor #1
- Serial Number :

Monitor Descriptor #2
- Serial Number :

Monitor Descriptor #3

Monitor Name : Philips F1 15

Monitor Descriptor #4
- Monitor Range Limits
- Min. Vt rate Hz : 58
- Max. Vt rate Hz : 62
- Min. Horiz. rate kHz : 30
- Max. Horiz. rate kHz : 49
- Max. Supported Pixel : 70

No secondary GTF timing formula supported.

Extension Flag : 0

Check sum : DE (HEX.)

****
EDID data (128 bytes)
****

0: 00 1: ff 2: ff 3: ff 4: ff 5: ff 6: ff 7: 00
8: 41 9: 0c 10: 50 11: 46 12: 01 13: 01 14: 01 15: 01
16: 00 17: 0e 18: 01 19: 03 20: 08 21: 1e 22: 17 23: 82
24: ee 25: b2 26: 45 27: a4 28: 55 29: 4c 30: 96 31: 24
32: 14 33: 50 34: 54 35: 23 36: 08 37: 00 38: 01 39: 01
40: 01 41: 01 42: 01 43: 01 44: 01 45: 01 46: 01 47: 01
48: 01 49: 01 50: 01 51: 01 52: 01 53: 01 54: 00 55: 00
56: 00 57: ff 58: 00 59: 0a 60: 20 61: 20 62: 20 63: 20
64: 20 65: 20 66: 20 67: 20 68: 20 69: 20 70: 20 71: 20
72: 00 73: 00 74: 00 75: ff 76: 00 77: 0a 78: 20 79: 20
80: 20 81: 20 82: 20 83: 20 84: 20 85: 20 86: 20 87: 20
88: 20 89: 20 90: 00 91: 00 92: 00 93: fc 94: 00 95: 50
96: 68 97: 69 98: 6c 99: 69 100: 70 101: 73 102: 20 103: 46
104: 31 105: 20 106: 31 107: 35 108: 00 109: 00 110: 00 111: fd
112: 00 113: 3a 114: 3e 115: 1e 116: 31 117: 07 118: 00 119: 0a
120: 20 121: 20 122: 20 123: 20 124: 20 125: 20 126: 00 127: de

DDC INSTRUCTIONS

Go to cover page

General

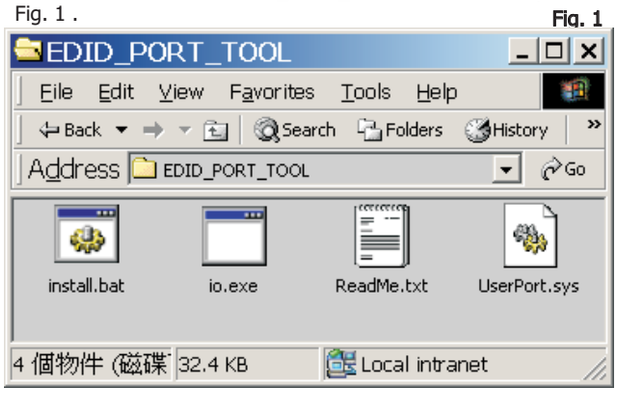
DDC Data Re-programming
In case the DDC data memory IC or main EEPROM which storage all factory settings were replaced due to a defect, the serial numbers have to be re-programmed"Analog DDC IC, & EEPROM".
It is advised to re-soldered DDC IC and main EEPROM from the old board onto the new board if circuit board have been replaced, in this case the DDC data does not need to be re-programmed.

Additional information
Additional information about DDC (Display Data Channel) may be obtained from Video Electronics Standards Association (VESA). Extended Display Identification Data(EDID) information may be also obtained from VESA.

System and equipment requirements

1. An i486 (or above) personal computer or compatible.
2. Microsoft operation system Windows 95/98 .
   You have to Install the EDID_PORT_Tool under Win2000/XP . As Fig. 1 .

Fig. 1



A. Cody the "UserPort.sys" to C:\WINNT\system32\drivers(win2000)

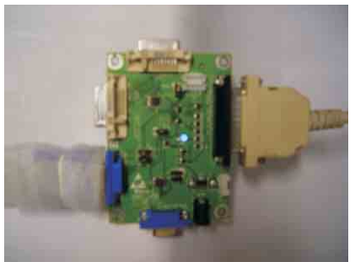
C:\WINDOWS\system32\drivers(winXP)

B. Running " io.exe" everytime, Before you start to programming edid data .

3. EDID45.EXE program .

4. A/D Alignment kits (3138 106 10396):
   inclusion : a. Alignment box x1 (as Fig. 2)

Fig. 2



b. Printer cable x1
c. (D-Sub) to (D-Sub) cable x1

Note: The alignment box has already build-in a batteries socket for using batteries (8~12V) as power source. Pull out the socket by remove four screws at the rear of box. Please do not forget that remove batteries after programming. The energy of batteries can only drive circuits for a short period of time.

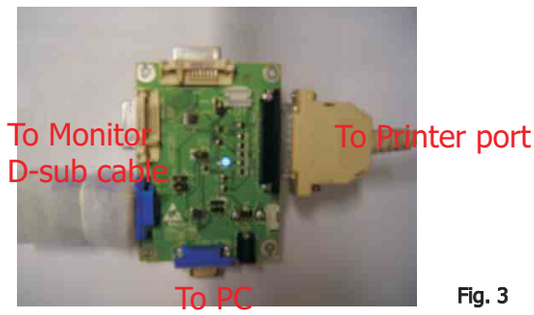


Fig. 3

Pin assignment

PIN No.	SIGNAL
1	Red
2	Green
3	Blue
4	GND
5	GND
6	Red GND
7	Green GND
8	Blue GND
9	+5V (Supply from PC)
10	Sync GND
11	GND
12	Bi-directional data
13	H-sync
14	V-sync
15	Data clock

Configuration and procedure

There are 2 chips contained OSD string, serial number..etc on the circuit board, main EEPROM which storage all factory settings,OSD string. DDC IC which storage 128byte EDID data(serial number ..etc.). Following descirptions are the connection and procedure for Analog and main EEPROM can be re-programmed along with Analog/Digital IC by enable factory memory data write function on the DDC program (EDID45.EXE).

Initialize alignment box

In order to avoid that monitor entering power saving mode due to sync will cut off by alignment box, it is necessary to initialize alignment box before running programming software (EDID45.EXE). Following steps show you the procedures and connection.

Step 1: Connecting printer cable and D-Sub cable of monitor as Fig. 4

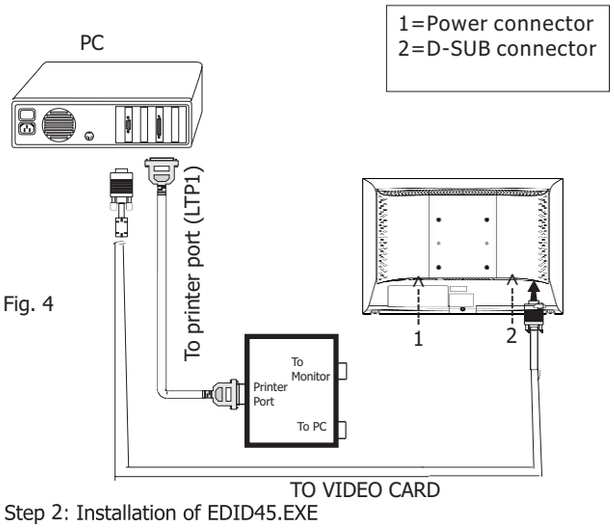


Fig. 4

Step 2: Installation of EDID45.EXE

Method 1: Start on DDC program

Start Microsoft Windows.

1. The Program"EDID45.EXE" in service manual cd-rom be copyed to C:\ .
2. Click Start , choose Run at start menu of Windows as shown In Fig. 5.

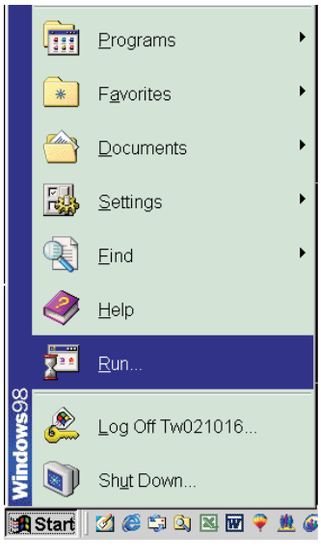


Fig. 5

3. At the submenu, type the letter of your computer's hard disk drive followed by :EDID45 (for example, C:\EDID45, as shown in Fig. 6).

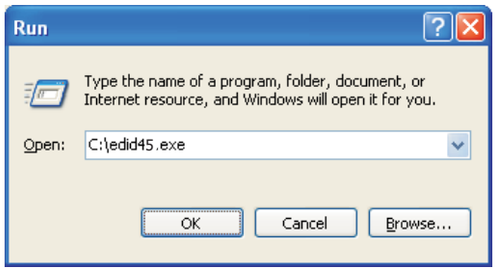


Fig. 6

4. Click OK button. The main menu appears (as shown in Fig. 7). This is for initialize alignment box.

Fig. 7

Note 1: If the connection is improper, you will see the following error message (as shown in Fig. 8) before entering the main menu. Meanwhile, the (read EDID) function will be disable. At this time,
please make sure all cables are connected correctly and

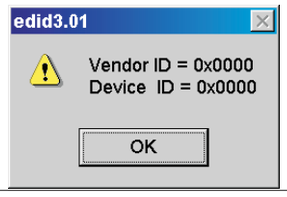


Fig. 8

Note 2: During the loading, EDID45 will verify the EDID data which just loaded from monitor before proceed any further function, once the data structure of EDID can not be recognized, the following error message will appear on the screen as below. Please confirm following steps to avoid this message.

1. The data structure of EDID was incorrect.
2. DDC IC that you are trying to load data is empty.
3. Wrong communication channel has set at configuration setup

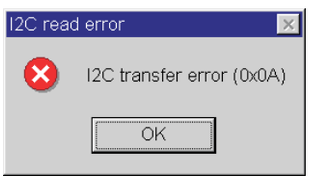


Fig. 9

DDC INSTRUCTIONS

Go to cover page

Re-programming DDC IC

Step 1: After initialize alignment box, connecting all cables and box as shown in Fig. 10

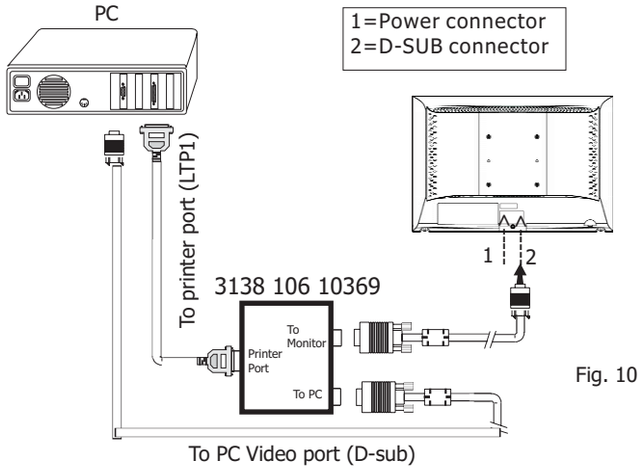


Fig. 10

Step 2: Read DDC data from monitor

1. Click icon as shown in Fig. 11 from the tool bar to bring up the Channels "Configuration Setup" windows as shown in Fig. 12.

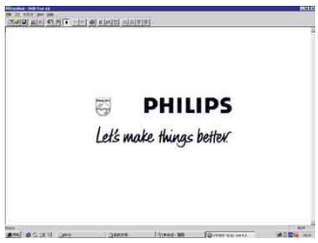


Fig. 11

2. Select the DDC2Bi as the communication channel. As shown in Fig. 12.

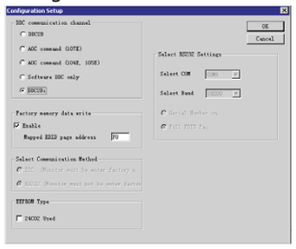


Fig. 12

3. Click OK button to confirm your selection.

4. Click icon (Read EDID function) to read DDC EDID data from monitor. The EDID codes will display on screen as shown in Fig. 13.

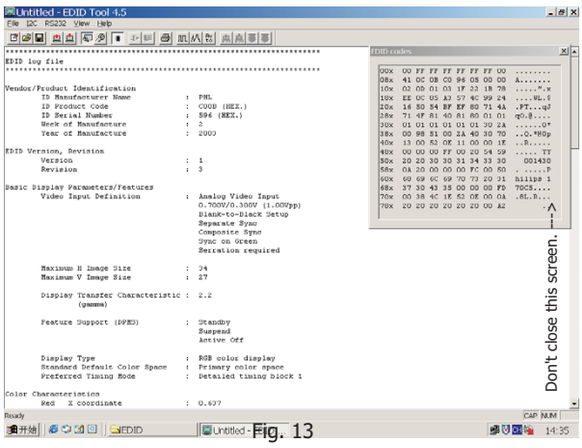


Fig. 13

Step 3: Modify DDC data (verify EDID version, week, year)

1. Click (new function) icon from the tool bar, bring up Step 1 of 9 as shown in Fig. 14 .
EDID45 DDC application provides the function selection and text change (select & fill out) from Step 1 to Step 9.

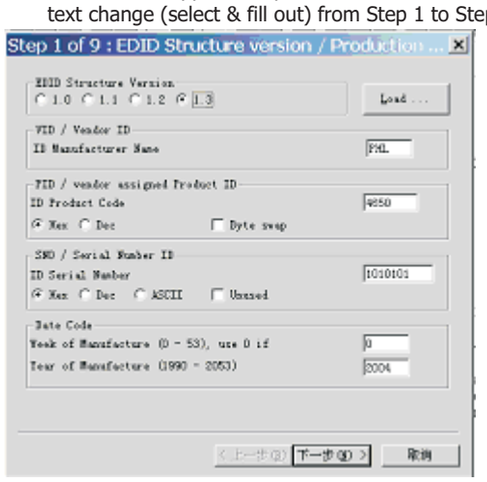


Fig. 14

Step 4: Modify DDC data (Monitor Serial No.)

1. Click Next , bring up Fig. 15.

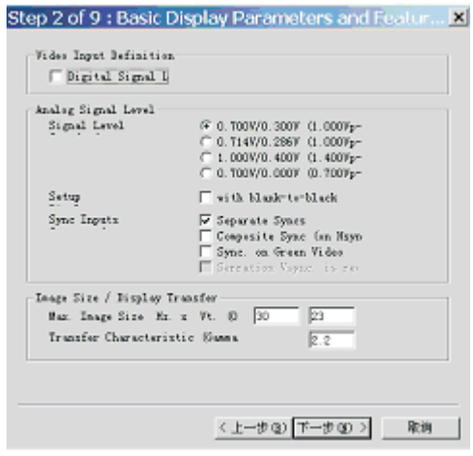


Fig. 15

2. Click Next , bring up Fig. 16.

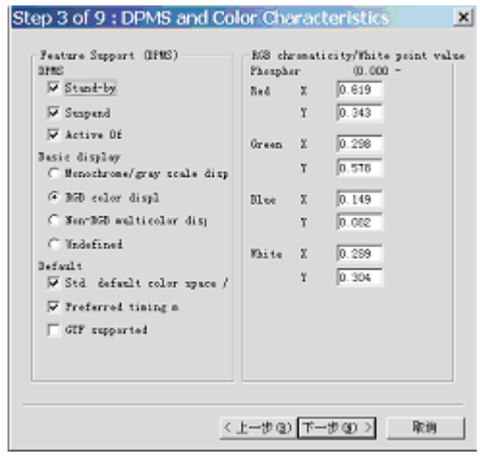


Fig. 16

3. Click Next , bring up Fig. 17.

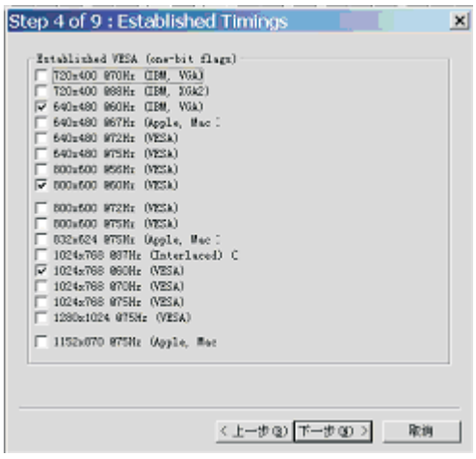


Fig. 17

4. Click Next , bring up Fig. 18.

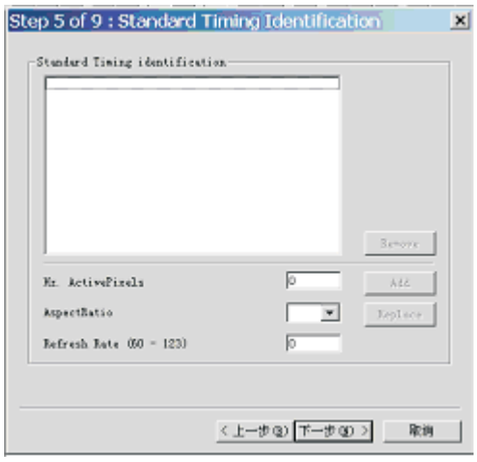


Fig. 18

5. Click Next , bring up Fig. 19.

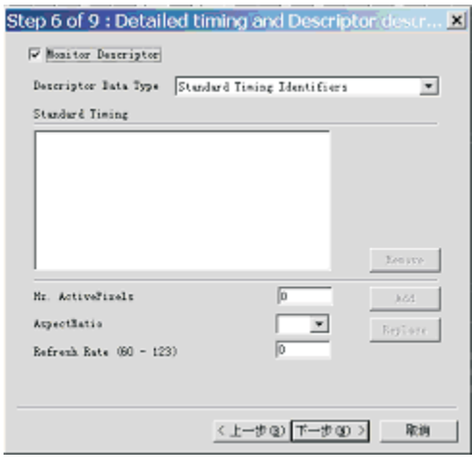


Fig. 19

6. Click Next , bring up Fig. 20.
   - Serial number can be filled up or be changed at this moment.

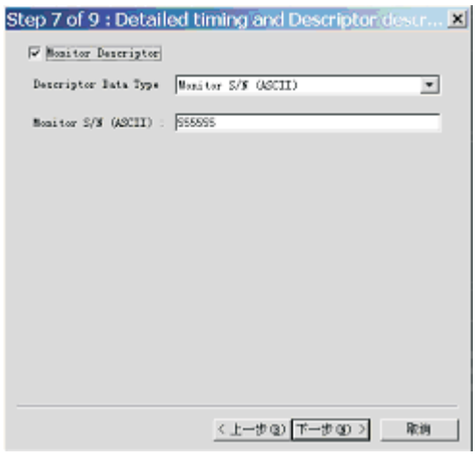


Fig. 20

7. Click Next , bring up Fig. 21.

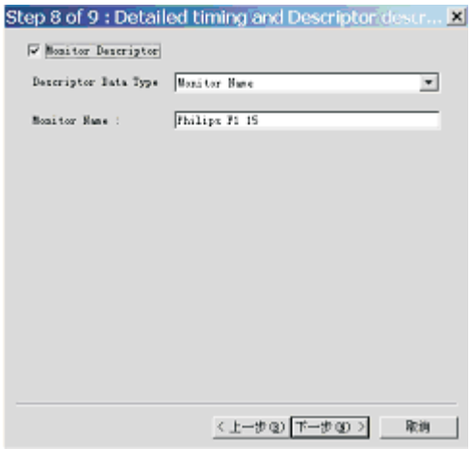


Fig. 21

8. Click Next , bring up Fig. 20.

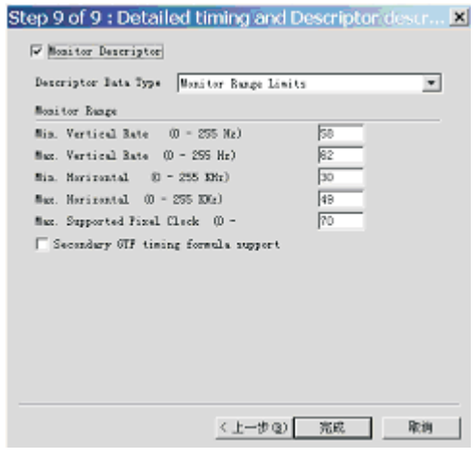


Fig. 22

DDC INSTRUCTIONS

Go to cover page

Step 5: Write DDC data

1. Configuration should be as Fig. 23. And press OK.

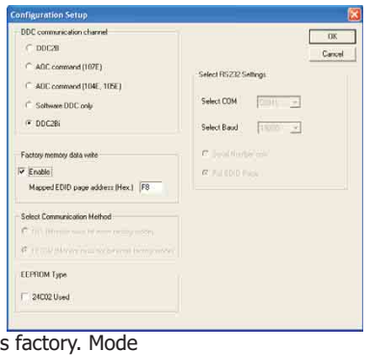


Fig. 23

Access factory. Mode

Step 1 : Select the source "PC" and then turn off LCD-TV.

Step 2 : [Push "power " button and then push the "VOL- " and "VOL+" buttons at the same time immediately and hold it] about five seconds then release all buttons.

Press "menu"button and bring up factory mode indication

3. Click (Write EDID) icon from the tool bar to write DDC data. Bring up "Writing 0%~100%, ready" a progressing bar on the left down corner.
4. Turn off/on monitor

Step 6: Save DDC data

Sometimes, you may need to save DDC data as a text file for using in other IC chip. To save DDC data, follow the steps below:

1. Click (Save) icon (or click "file"-> "save as") from the tool bar And give a file name as shown in Fig. 24.
   The file type is EDID45 file (*.ddc) which can be open in WordPad. By using WordPad, the texts of DDC data & table (128 bytes, hex code) can be modified. If DDC TEXTS & HEX Table are completely correct, it can be saved as .ddc flie to re-load it into DDC IC for DDC Data application.

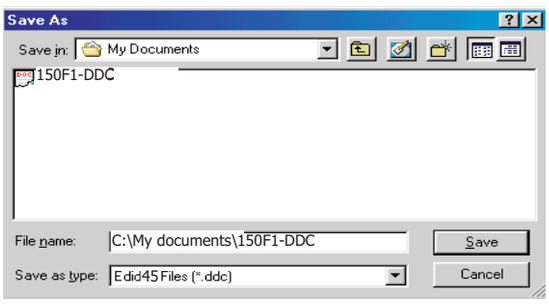


Fig. 24

2. Click Save.

Step 7: Exit DDC program

Pull down the File menu and select Exit as shown in Fig. 25.

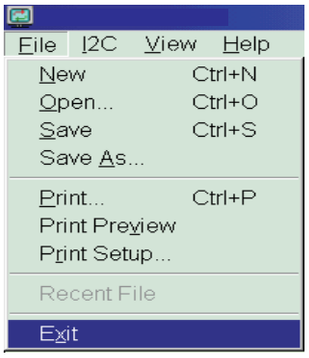


Fig. 25

Configuration and procedure

"Easywriter " The software is provided by Novatek to upgrade the firmware of CPU.
It is a windows-based program, which cannot be run in MS-DOS.
DDC2BI_ISP TOOL (3138 106 10396) is for the interface between "Parallel Port of PC" and "15 pin-D-SUB connector of Monitor".

System and equipment requirements

1. An i486 (or above) personal computer or compatible.
2. Microsoft operation system Windows 95/98/2000/XP.
3. ISP Software " Easywrite "
4. DDC2BI_ISP TOOL (3138 106 10396) as shown in Fig. 1

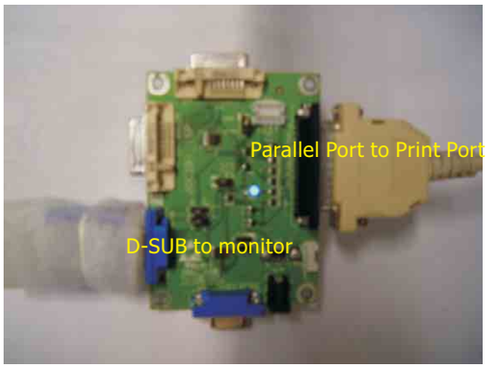


Fig. 1

5. Connect DDC2BI_ISP TOOL and Mains cord to Monitor as shown in Fig. 2.

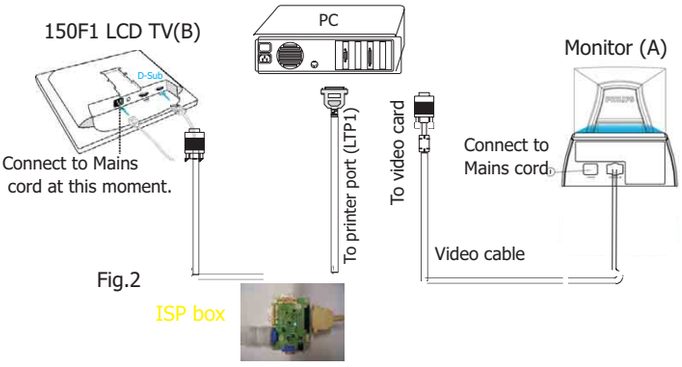


Fig.2

6. Run the Easywriter program

Step 1 : Make a folder in your PC as shown in Fig. 3.
For example : C:\easywrite
Step 2 : Copy ISP Software Easywriter.zip into your folder as shown in Fig.3.
Step 3 : Unzip Easywriter.zip into your folder as shown in Fig. 3.

Step 4 : Double click the EasywriterV2.07.exe icon to run the Application as Fig. 4.

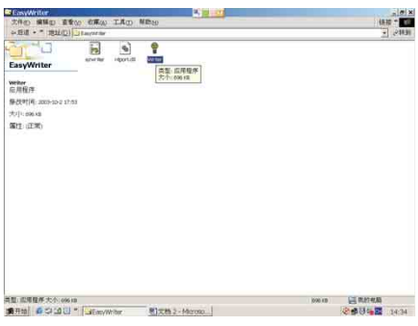
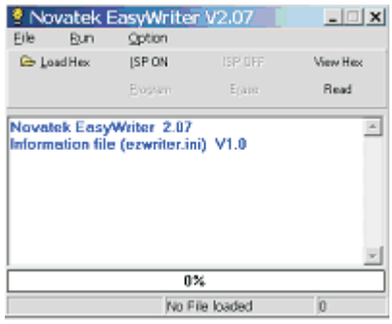


Fig. 4



Step 5 :Copy the .hex code to C:\easywrite as shown in Fig. 5 .

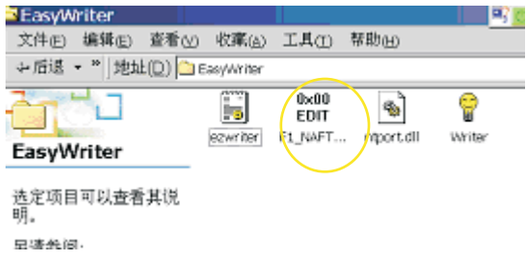


Fig. 5

Update the firmware

1. Press the load hex then select the .hex code as shown in Fig.6

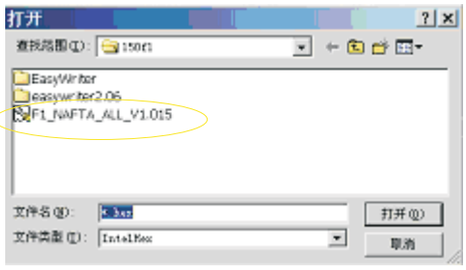


Fig. 6

2. Press the AUTO to run the program,the firmware be updated as shown in Fig7`Fig.8

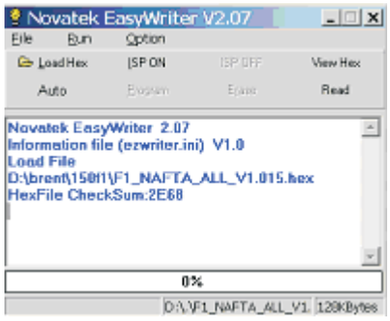


Fig. 7

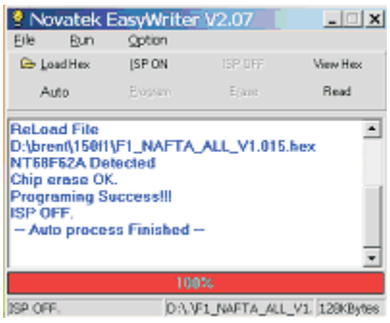


Fig.8

ISP Instruction

Go to cover page

Press the file— exit to end program, as shown in Fig.9

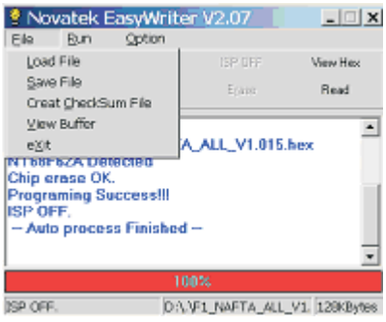
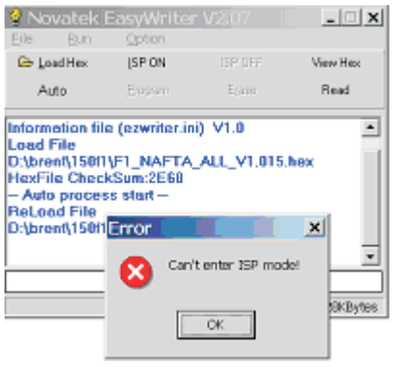
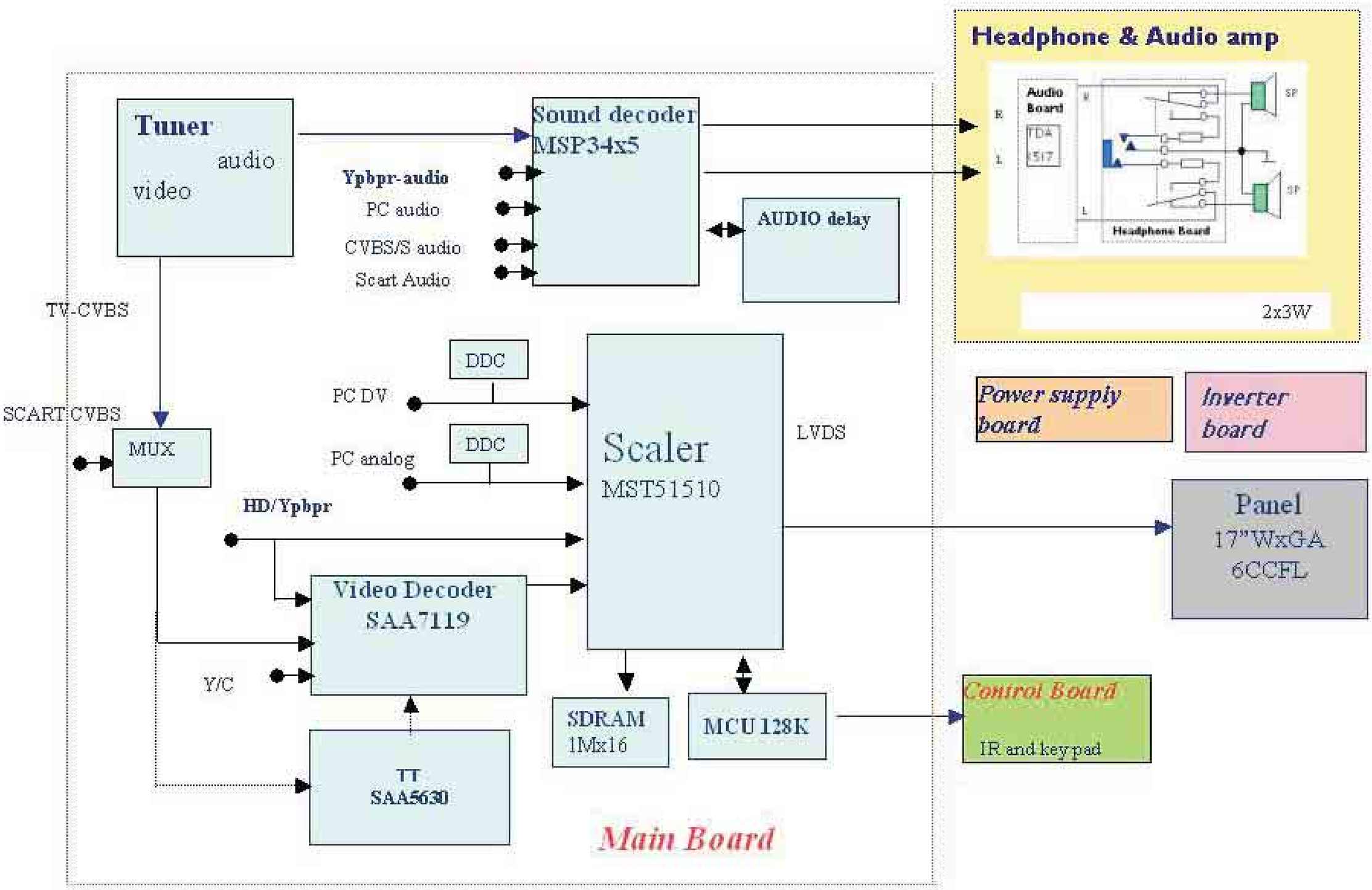


Fig.9

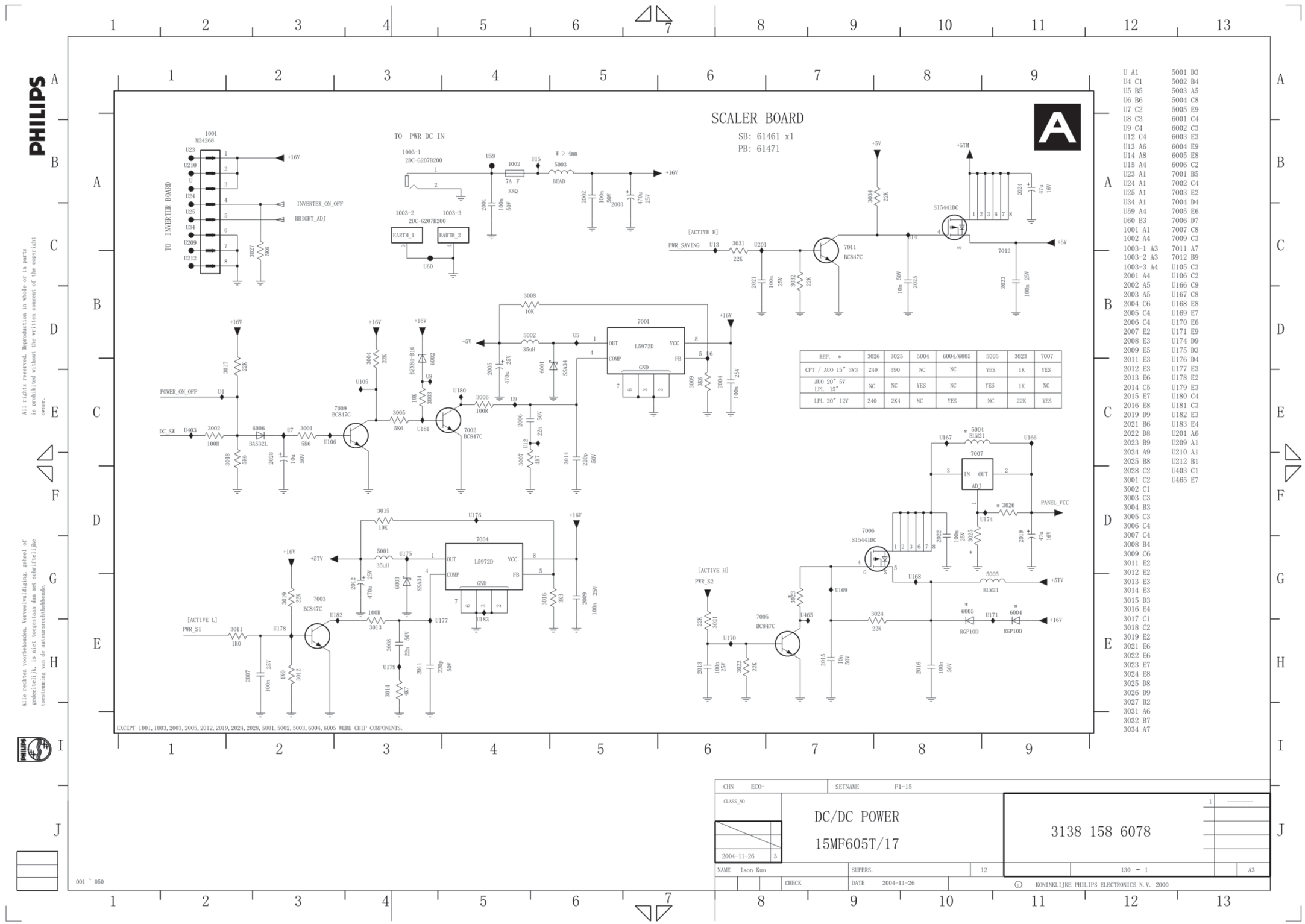
If there is a warring message coming as shown in Fig 10. , you have to check the AC power, Video cable, or Novatek MCU.



BLOCK DIAGRAM



DC/DC POWER



REF. *	3026	3025	5004	6004/6005	5005	3023	7007
CPT / AUO 15" 3V3	240	390	NC	NC	YES	1K	YES
AUO 20" 5V LPL 15"	NC	NC	YES	NC	YES	1K	NC
LPL 20" 12V	240	2K4	NC	YES	NC	22K	YES

U A1	5001 D3		
U4 C1	5002 B4		
U5 B5	5003 A5		
U6 B6	5004 C8		
U7 C2	5005 E9		
U8 C3	6001 C4		
U9 C4	6002 C3		
U12 C4	6003 E3		
U13 A6	6004 E9		
U14 A8	6005 E8		
U15 A4	6006 C2		
U23 A1	7001 B5		
U24 A1	7002 C4		
U25 A1	7003 E2		
U34 A1	7004 D4		
U59 A4	7005 E6		
U60 B3	7006 D7		
1001 A1	7007 C8		
1002 A4	7009 C3		
1003-1 A3	7011 A7		
1003-2 A3	7012 B9		
1003-3 A4	U105 C3		
2001 A4	U106 C2		
2002 A5	U166 C9		
2003 A5	U167 C8		
2004 C6	U168 E8		
2005 C4	U169 E7		
2006 C4	U170 E6		
2007 E2	U171 E9		
2008 E3	U174 D9		
2009 E5	U175 D3		
2011 E3	U176 D4		
2012 E3	U177 E3		
2013 E6	U178 E2		
2014 C5	U179 E3		
2015 E7	U180 C4		
2016 E8	U181 C3		
2019 D9	U182 E3		
2021 B6	U183 E4		
2022 D8	U201 A6		
2023 B9	U209 A1		
2024 A9	U210 A1		
2025 B8	U212 B1		
2028 C2	U403 C1		
3001 C2	U465 E7		
3002 C1			
3003 C3			
3004 B3			
3005 C3			
3006 C4			
3007 C4			
3008 B4			
3009 C6			
3011 E2			
3012 E2			
3013 E3			
3014 E3			
3015 D3			
3016 E4			
3017 C1			
3018 C2			
3019 E2			
3021 E6			
3022 E6			
3023 E7			
3024 E8			
3025 D8			
3026 D9			
3027 B2			
3031 A6			
3032 B7			
3034 A7			

All rights reserved. Reproduction in whole or in parts is prohibited without the written consent of the copyright owner.
Alle rechten voorbehouden. Verveelvuldiging, geheel of gedeeltelijk, is niet toegestaan dan met schriftelijke toestemming van de auteursrechthebbende.

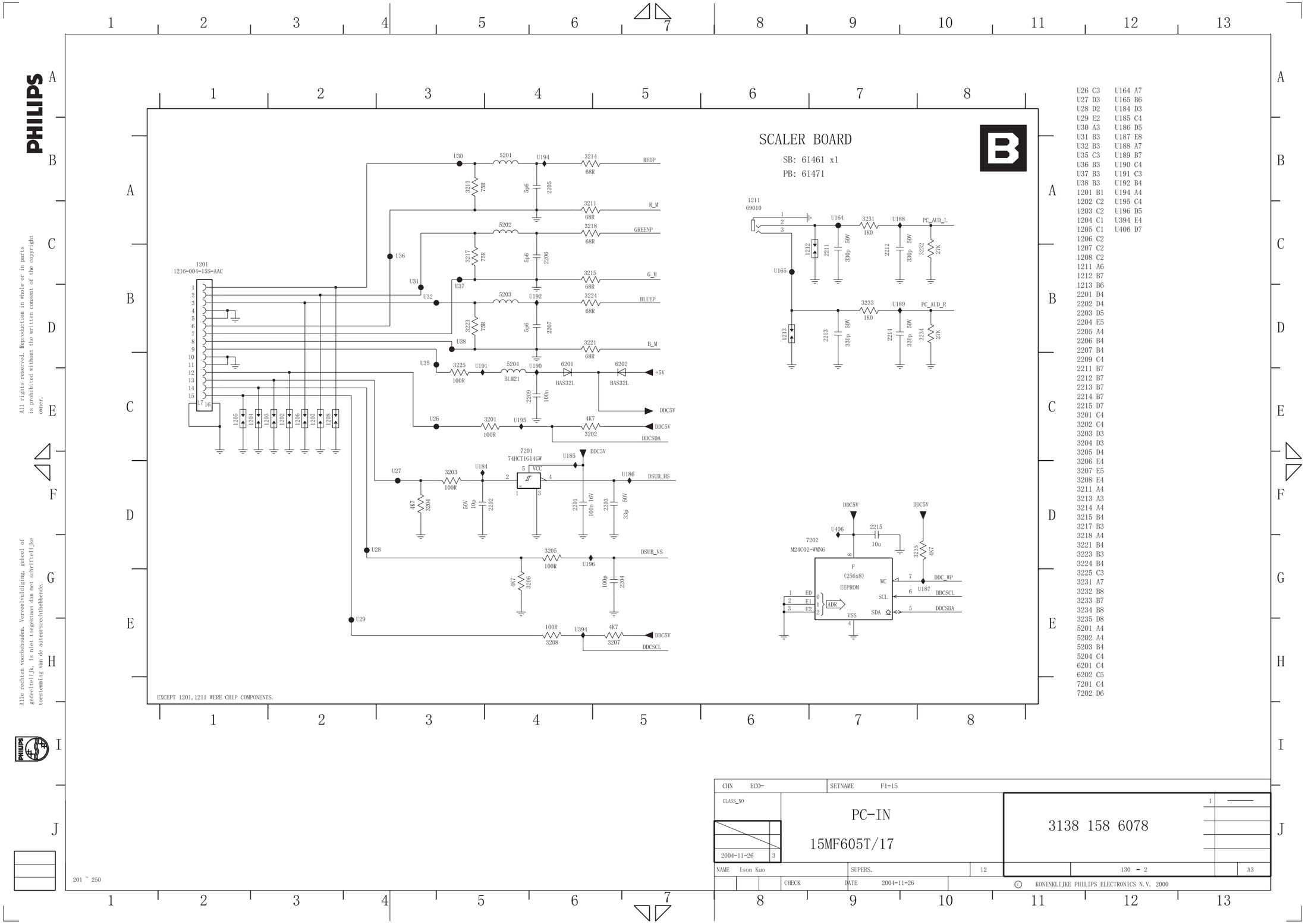
CHN ECO-		SETNAME F1-15	
CLASS_NO	DC/DC POWER 15MF605T/17		3138 158 6078
2004-11-26 3			
NAME Ison Kuo	SUPERS. 12		130 - 1 A3
CHECK	DATE 2004-11-26		KONINKLIJKE PHILIPS ELECTRONICS N.V. 2000

001 ~ 050

PC-IN Diagram

All rights reserved. Reproduction in whole or in parts is prohibited without the written consent of the copyright owner.

Alle rechten voorbehouden. Vervaelvuldiging, geheel of gedeeltelijk, is niet toegestaan dan met schriftelijke toestemming van de auteursrechthebbende.

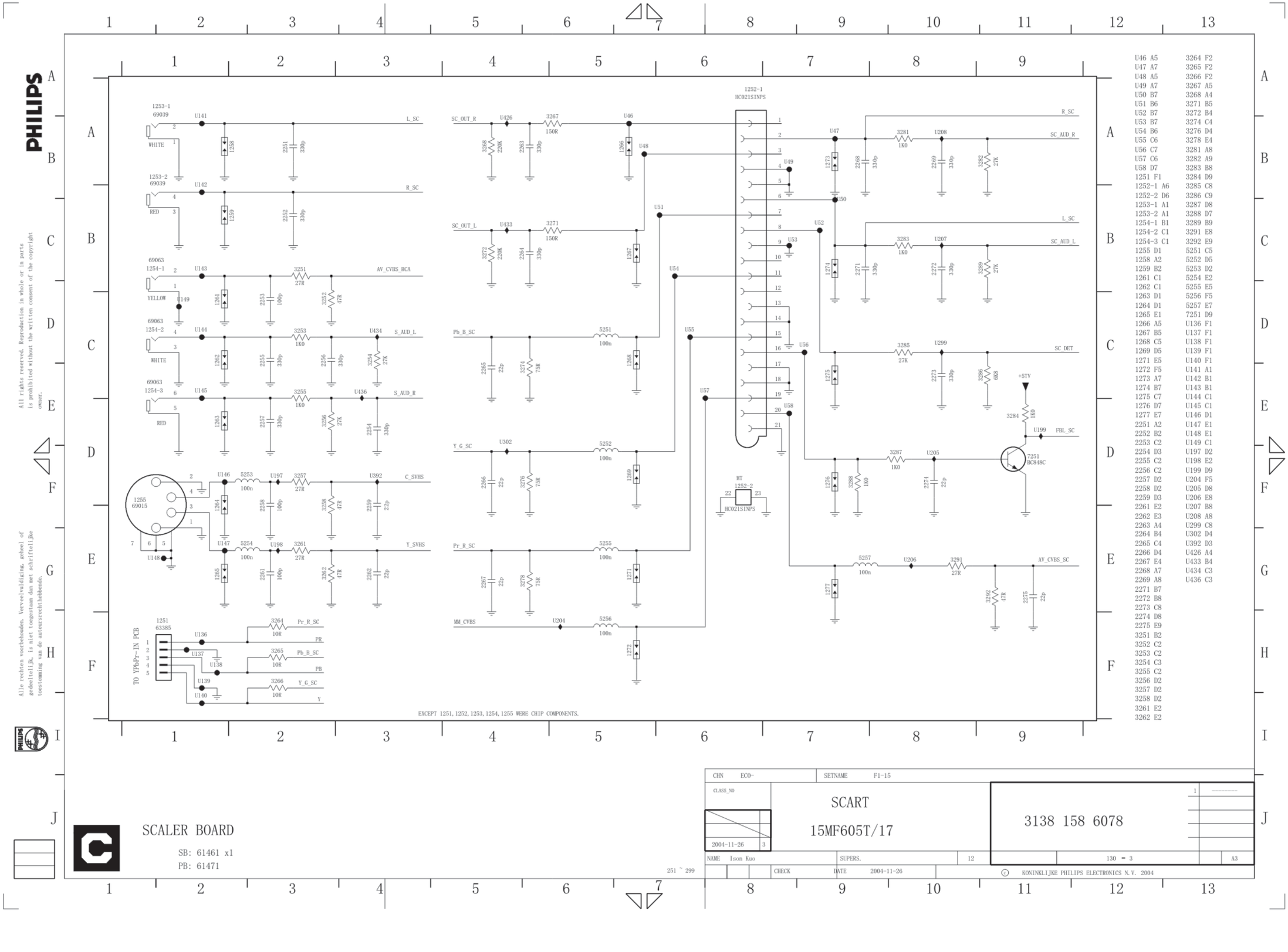


U26 C3 U164 A7
U27 D3 U165 B6
U28 D2 U184 D3
U29 E2 U185 C4
U30 A3 U186 D5
U31 B3 U187 E8
U32 B3 U188 A7
U35 C3 U189 B7
U36 B3 U190 C4
U37 B3 U191 C3
U38 B3 U192 B4
1201 B1 U194 A4
1202 C2 U195 C4
1203 C2 U196 D5
1204 C1 U394 E4
1205 C1 U406 D7
1206 C2
1207 C2
1208 C2
1211 A6
1212 B7
1213 B6
2201 D4
2202 D4
2203 D5
2204 E5
2205 A4
2206 B4
2207 B4
2209 C4
2211 B7
2212 B7
2213 B7
2214 B7
2215 D7
3201 C4
3202 C4
3203 D3
3204 D3
3205 D4
3206 E4
3207 E5
3208 E4
3211 A4
3213 A3
3214 A4
3215 B4
3217 B3
3218 A4
3221 B4
3223 B3
3224 B4
3225 C3
3231 A7
3232 B8
3233 B7
3234 B8
3235 D8
5201 A4
5202 A4
5203 B4
5204 C4
6201 C4
6202 C5
7201 C4
7202 D6

CHN ECO-	SETNAME F1-15		
CLASS_NO	PC-IN 15MF605T/17	3138 158 6078	1
2004-11-26 3			
NAME Ison Kuo	SUPERS. 12	130 - 2	A3
	CHECK DATE 2004-11-26	© KONINKLIJKE PHILIPS ELECTRONICS N.V. 2000	

201 ~ 250

SCART DIAGRAM



U46 A5 3264 F2
U47 A7 3265 F2
U48 A5 3266 F2
U49 A7 3267 A5
U50 B7 3268 A4
U51 B6 3271 B5
U52 B7 3272 B4
U53 B7 3274 C4
U54 B6 3276 D4
U55 C6 3278 E4
U56 C7 3281 A8
U57 C6 3282 A9
U58 D7 3283 B8
1251 F1 3284 D9
1252-1 A6 3285 C8
1252-2 D6 3286 C9
1253-1 A1 3287 D8
1253-2 A1 3288 D7
1254-1 B1 3289 B9
1254-2 C1 3291 E8
1254-3 C1 3292 E9
1255 D1 5251 C5
1258 A2 5252 D5
1259 B2 5253 D2
1261 C1 5254 E2
1262 C1 5255 E5
1263 D1 5256 F5
1264 D1 5257 E7
1265 E1 7251 D9
1266 A5 U136 F1
1267 B5 U137 F1
1268 C5 U138 F1
1269 D5 U139 F1
1271 E5 U140 F1
1272 F5 U141 A1
1273 A7 U142 B1
1274 B7 U143 B1
1275 C7 U144 C1
1276 D7 U145 C1
1277 E7 U146 D1
2251 A2 U147 E1
2252 B2 U148 E1
2253 C2 U149 C1
2254 D3 U197 D2
2255 C2 U198 E2
2256 C2 U199 D9
2257 D2 U204 F5
2258 D2 U205 D8
2259 D3 U206 E8
2261 E2 U207 B8
2262 E3 U208 A8
2263 A4 U299 C8
2264 B4 U302 D4
2265 C4 U392 D3
2266 D4 U426 A4
2267 E4 U433 B4
2268 A7 U434 C3
2269 A8 U436 C3
2271 B7
2272 B8
2273 C8
2274 D8
2275 E9
3251 B2
3252 C2
3253 C2
3254 C3
3255 C2
3256 D2
3257 D2
3258 D2
3261 E2
3262 E2

All rights reserved. Reproduction in whole or in parts is prohibited without the written consent of the copyright owner.
Alle rechten voorbehouden. Verveelvuldiging, geheel of gedeeltelijk, is niet toegestaan dan met schriftelijke toestemming van de auteursrechthebbende.

SCALER BOARD

SB: 61461 x1
PB: 61471

CHN ECO-	SETNAME F1-15		
CLASS_NO	SCART	3138 158 6078	1
2004-11-26 3	15MF605T/17		
NAME Ison Kuo	SUPERS. 12	130 - 3	A3
CHECK	DATE 2004-11-26	© KONINKLIJKE PHILIPS ELECTRONICS N.V. 2004	

VIDEO-IN Diagram

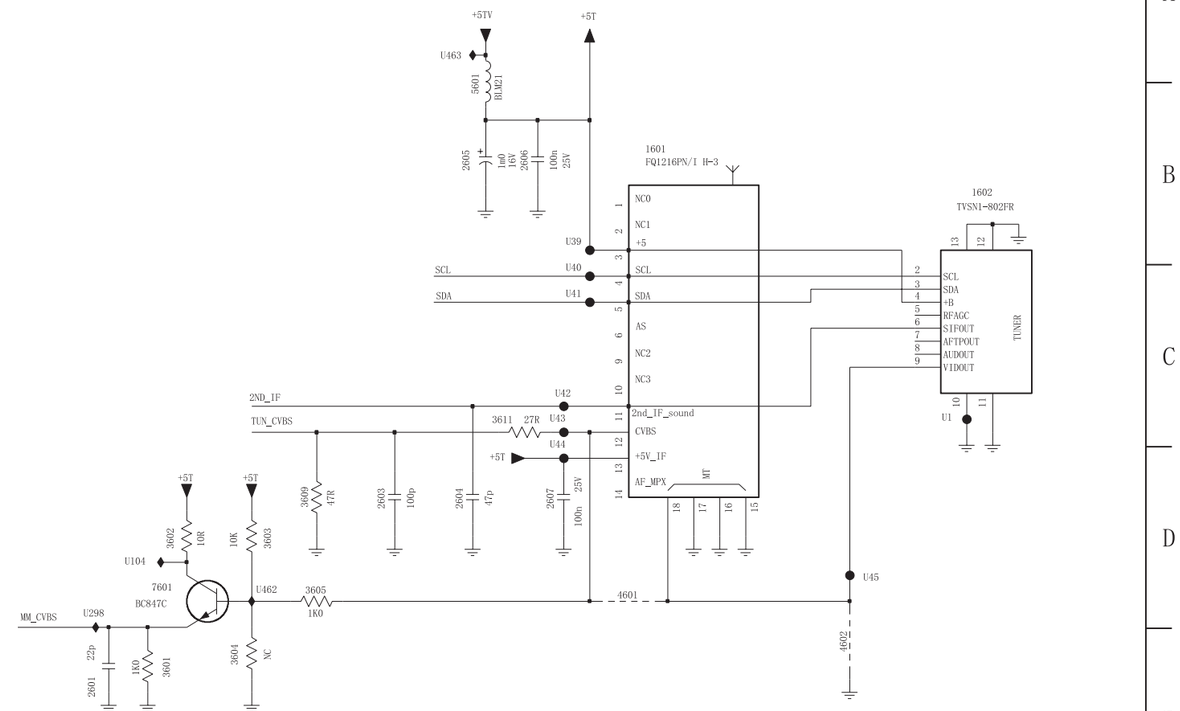
All rights reserved. Reproduction in whole or in parts is prohibited without the written consent of the copyright owner.

Alle rechten voorbehouden. Verveelvuldiging, geheel of gedeeltelijk, is niet toegestaan dan met schriftelijke toestemming van de auteursrechthebbende.

SCALER BOARD

SB: 61461 x1

PB: 61471



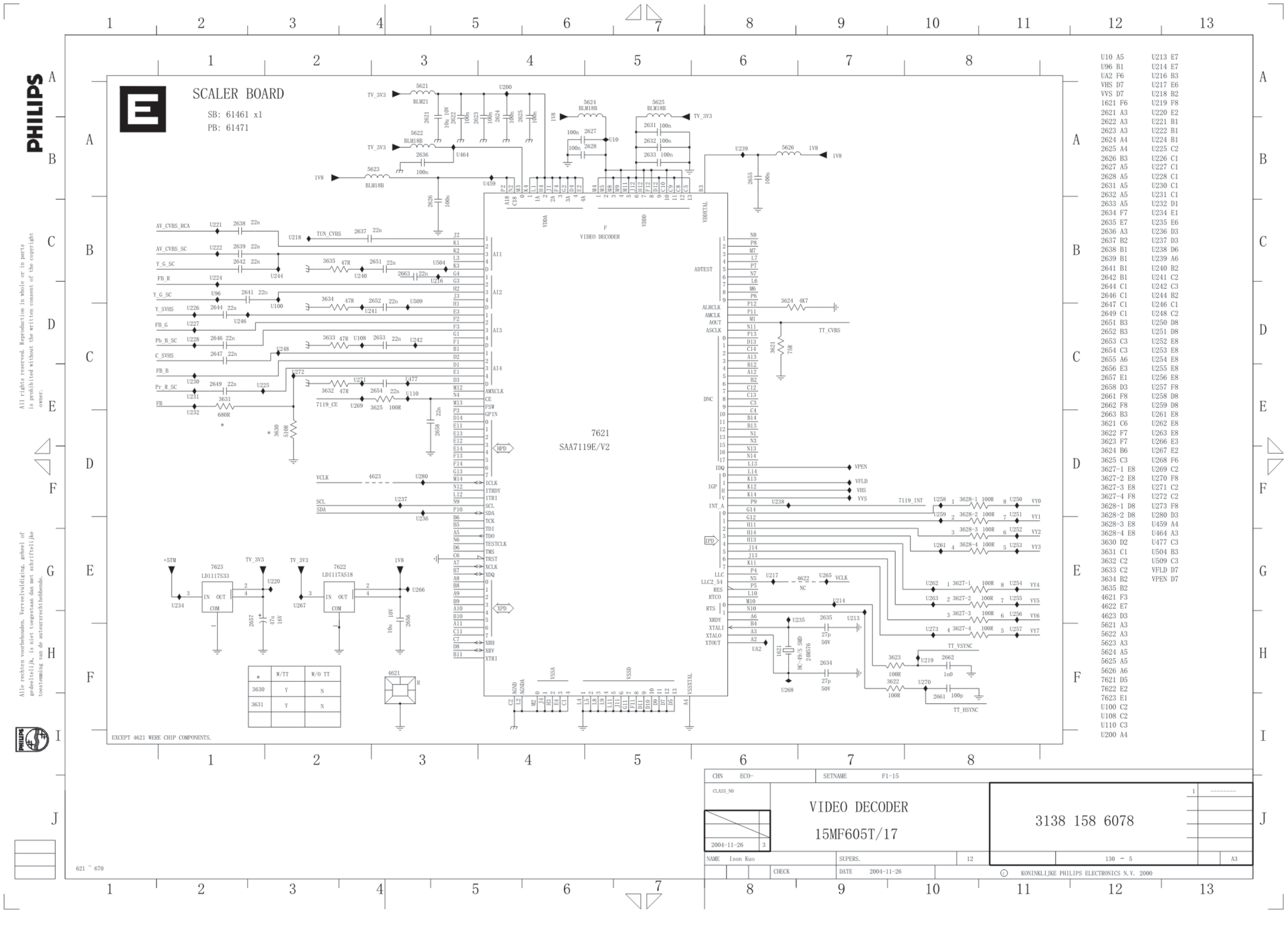
EXCEPT 1601,1602,2605 WERE CHIP COMPONENTS.

U1 C6
U39 B4
U40 C4
U41 C4
U42 C4
U43 C4
U44 D4
U45 D6
1601 B5
1602 B6
2601 E2
2603 D3
2604 D4
2605 B4
2606 B4
2607 D4
3601 E2
3602 D2
3603 D3
3604 E2
3605 D3
3609 D3
3611 C4
4601 D5
4602 E6
5601 A4
7601 D2
U104 D2
U298 D2
U462 D3
U463 A4

CHN ECO-		SETNAME F1-15	
CLASS_NO	VIDEO-IN	3138 158 6078	1
2004-11-26 3	15MF605T/17		
NAME Ison Kuo	SUPERS. 12	130 - 4	A3
CHECK	DATE 2004-11-26	© KONINKLIJKE PHILIPS ELECTRONICS N.V. 2003	

601 ~ 620

VIDEO DECODER DIAGRAM


SCALER BOARD
SB: 61461 x1
PB: 61471
7621
SAA7119E/V2
VIDEO DECODER
15MF605T/17
3138 158 6078
EXCEPT 4621 WERE CHIP COMPONENTS.
All rights reserved. Reproduction in whole or in parts is prohibited without the written consent of the copyright owner.
Alle rechten voorbehouden. Verveelvuldiging, geheel of gedeeltelijk, is niet toegestaan tan met schriftelijke toestemming van de auteursrechthebbende.

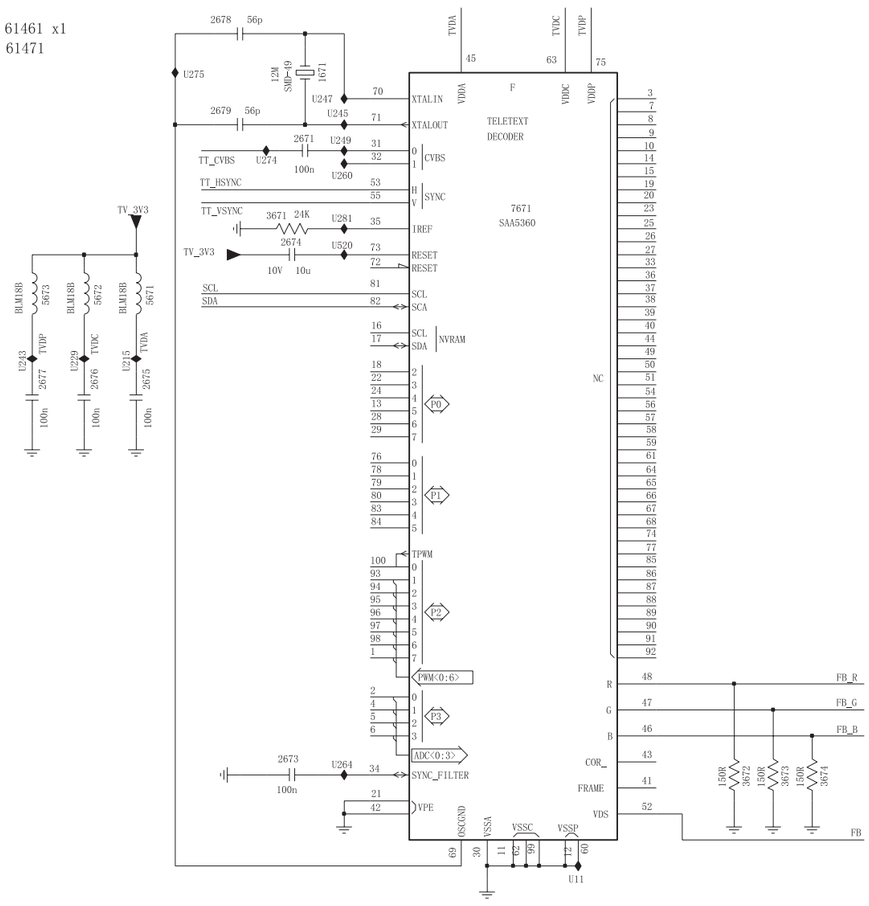
T/T DECODER Diagram

All rights reserved. Reproduction in whole or in parts is prohibited without the written consent of the copyright owner.

Alle rechten voorbehouden. Verveelvuldigings, geheel of gedeeltelijk, is niet toegestaan dan met schriftelijke toestemming van de auteursrechthebbende.

SCALER BOARD

SB: 61461 x1
PB: 61471

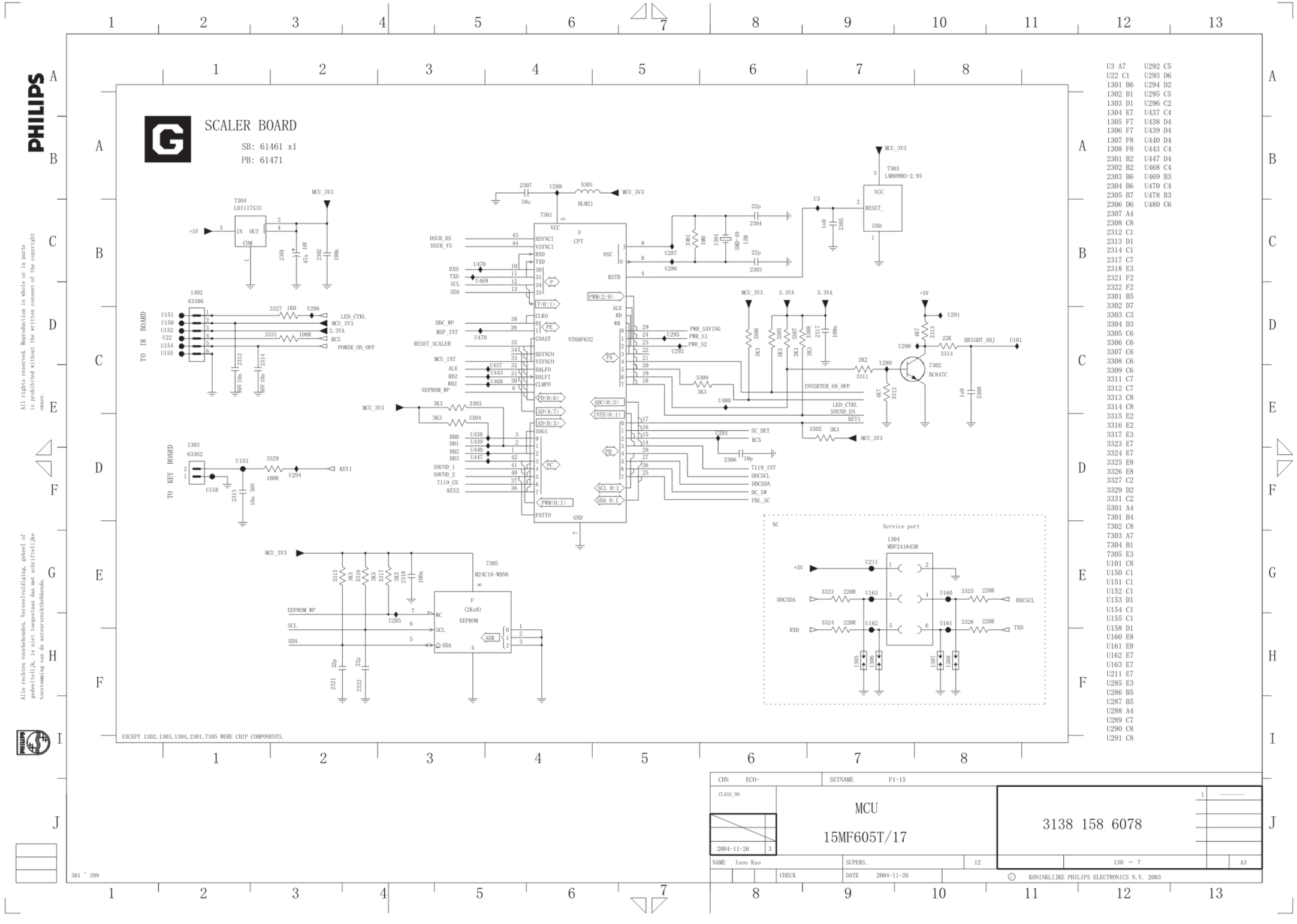


U11 E5
1671 A3
2671 A3
2673 E3
2674 B3
2675 C2
2676 C2
2677 C2
2678 A3
2679 A3
3671 B3
3672 E6
3673 E6
3674 E6
5671 B2
5672 B2
5673 B2
7671 B5
U215 C2
U229 C2
U243 C2
U245 A4
U247 A4
U249 A4
U260 B4
U264 E4
U274 A3
U275 A3
U281 B4
U520 B4

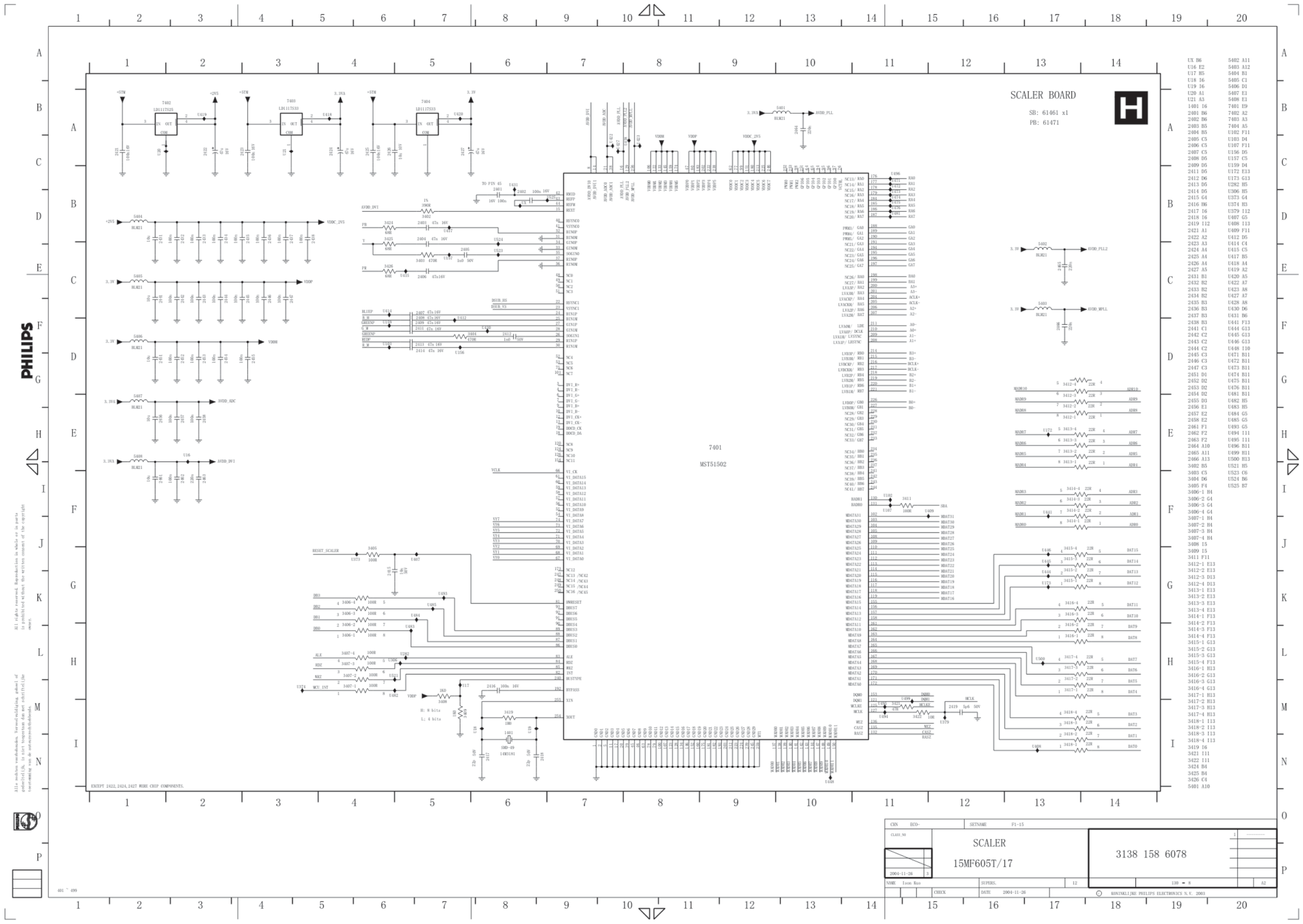
CHN ECO-		SETNAME F1-15	
CLASS_NO	T/T DECODER	3138 158 6078	1
2004-11-26 3	15MF605T/17		
NAME Ison Kuo	SUPERS.	12	130 - 6 A3
CHECK	DATE 2004-11-26	© KONINKLIJKE PHILIPS ELECTRONICS N.V. 2003	

671 ~ 699

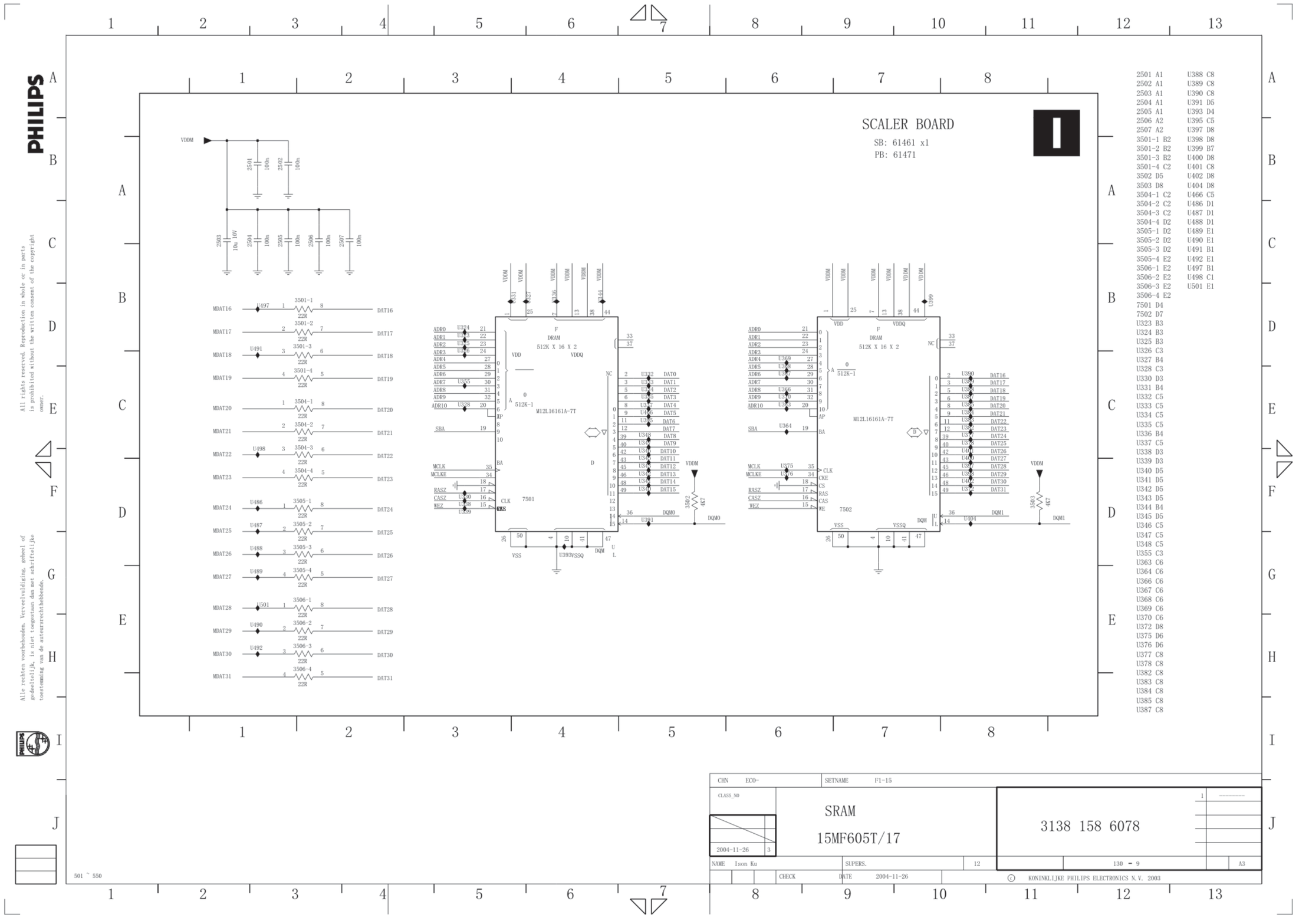
MCU DIAGRAM


PHILIPS
SCALER BOARD
SB: 61461 x1
PB: 61471
7304 LD1117S33
MCU_3V3
+5V
1302 63386
TO IR BOARD
LED_CTRL
MCU_3V3
3.3VA
RC5
POWER_ON_OFF
1303 63362
TO KEY BOARD
KEY1
KEY2
7301
NT68F632
DSUB_HS
DSUB_VS
RESET_SCALER
MCU_INT
EEPROM_WP
SOUND_1
SOUND_2
7119_CE
7119_INT
DDCSCL
DDCSDA
DC_SW
FBL_SC
PWR_SAVING
PWR_S1
PWR_S2
INVERTER_ON_OFF
LED_CTRL
SOUND_EN
KEY1
SC_DET
BRIGHT_ADJ
7303 LM809M3-2.93
7305 M24C16-WBN6
(2Kx8) EEPROM
Service port
7304 MDF241843R
NC
EXCEPT 1302, 1303, 1304, 2301, 7305 WERE CHIP COMPONENTS.
U3 A7
U22 C1
1301 B6
1302 B1
1303 D1
1304 E7
1305 F7
1306 F7
1307 F8
1308 F8
2301 B2
2302 B2
2303 B6
2304 B6
2305 B7
2306 D6
2307 A4
2308 C8
2312 C1
2313 D1
2314 C1
2317 C7
2318 E3
2321 F2
2322 F2
3301 B5
3302 D7
3303 C3
3304 D3
3305 C6
3306 C6
3307 C6
3308 C6
3309 C6
3311 C7
3312 C7
3313 C8
3314 C8
3315 E2
3316 E2
3317 E3
3323 E7
3324 E7
3325 E8
3326 E8
3327 C2
3329 D2
3331 C2
5301 A4
7301 B4
7302 C8
7303 A7
7304 B1
7305 E3
U101 C8
U150 C1
U151 C1
U152 C1
U153 D1
U154 C1
U155 C1
U158 D1
U160 E8
U161 E8
U162 E7
U163 E7
U211 E7
U285 E3
U286 B5
U287 B5
U288 A4
U289 C7
U290 C8
U291 C8
U292 C5
U293 D6
U294 D2
U295 C5
U296 C2
U437 C4
U438 D4
U439 D4
U440 D4
U443 C4
U447 D4
U468 C4
U469 B3
U470 C4
U478 B3
U480 C6
All rights reserved. Reproduction in whole or in parts is prohibited without the written consent of the copyright owner.
Alle rechten voorbehouden. Verveelvuldiging, geheel of gedeeltelijk, is niet toegestaan dan met schriftelijke toestemming van de auteursrechthebbende.
CHN ECO-
SETNAME F1-15
CLASS_NO
MCU
15MF605T/17
3138 158 6078
2004-11-26 3
NAME Ison Kuo
SUPERS.
12
130 - 7
A3
CHECK
DATE 2004-11-26
KONINKLIJKE PHILIPS ELECTRONICS N.V. 2003
301 ~ 399

Scaler Diagram



SRAM DIAGRAM



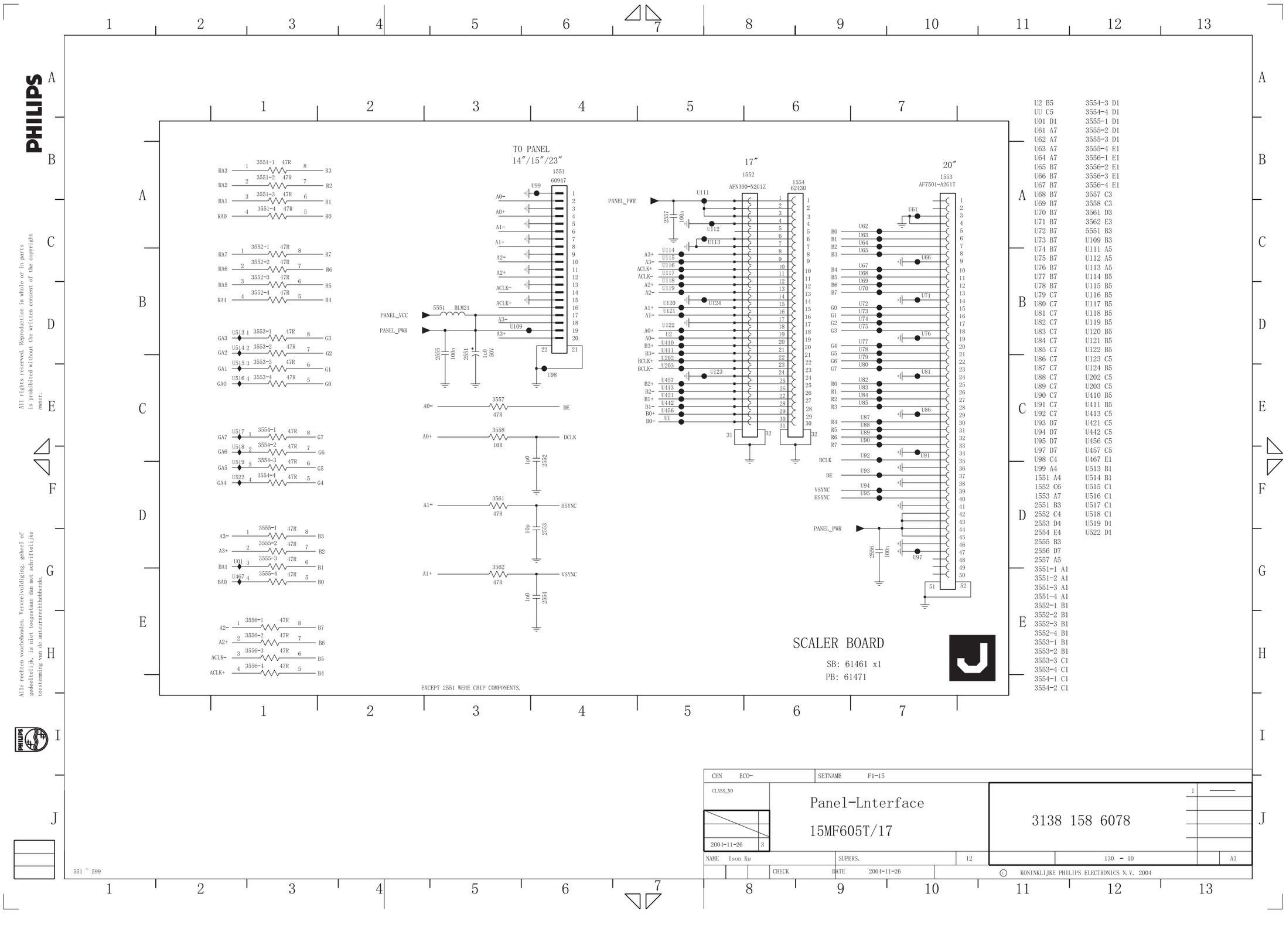
2501 A1
2502 A1
2503 A1
2504 A1
2505 A1
2506 A2
2507 A2
3501-1 B2
3501-2 B2
3501-3 B2
3501-4 C2
3502 D5
3503 D8
3504-1 C2
3504-2 C2
3504-3 C2
3504-4 D2
3505-1 D2
3505-2 D2
3505-3 D2
3505-4 E2
3506-1 E2
3506-2 E2
3506-3 E2
3506-4 E2
7501 D4
7502 D7
U323 B3
U324 B3
U325 B3
U326 C3
U327 B4
U328 C3
U330 D3
U331 B4
U332 C5
U333 C5
U334 C5
U335 C5
U336 B4
U337 C5
U338 D3
U339 D3
U340 D5
U341 D5
U342 D5
U343 D5
U344 B4
U345 D5
U346 C5
U347 C5
U348 C5
U355 C3
U363 C6
U364 C6
U366 C6
U367 C6
U368 C6
U369 C6
U370 C6
U372 D8
U375 D6
U376 D6
U377 C8
U378 C8
U382 C8
U383 C8
U384 C8
U385 C8
U387 C8
U388 C8
U389 C8
U390 C8
U391 D5
U393 D4
U395 C5
U397 D8
U398 D8
U399 B7
U400 D8
U401 C8
U402 D8
U404 D8
U466 C5
U486 D1
U487 D1
U488 D1
U489 E1
U490 E1
U491 B1
U492 E1
U497 B1
U498 C1
U501 E1

CHN ECO-	SETNAME F1-15		
CLASS_NO	SRAM	3138 158 6078	1
2004-11-26 3	15MF605T/17		
NAME Ison Ku	SUPERS. 12	130 - 9	A3
	CHECK DATE 2004-11-26	© KONINKLIJKE PHILIPS ELECTRONICS N.V. 2003	

Panel interface Diagram

All rights reserved. Reproduction in whole or in parts is prohibited without the written consent of the copyright owner.

Alle rechten voorbehouden. Verveelvuldiging, geheel of gedeeltelijk, is niet toegestaan dan met schriftelijke toestemming van de auteursrechthebbende.



U2 B5
UU C5
U01 D1
U61 A7
U62 A7
U63 A7
U64 A7
U65 B7
U66 B7
U67 B7
U68 B7
U69 B7
U70 B7
U71 B7
U72 B7
U73 B7
U74 B7
U75 B7
U76 B7
U77 B7
U78 B7
U79 C7
U80 C7
U81 C7
U82 C7
U83 C7
U84 C7
U85 C7
U86 C7
U87 C7
U88 C7
U89 C7
U90 C7
U91 C7
U92 C7
U93 D7
U94 D7
U95 D7
U97 D7
U98 C4
U99 A4
1551 A4
1552 C6
1553 A7
2551 B3
2552 C4
2553 D4
2554 E4
2555 B3
2556 D7
2557 A5
3551-1 A1
3551-2 A1
3551-3 A1
3551-4 A1
3552-1 B1
3552-2 B1
3552-3 B1
3552-4 B1
3553-1 B1
3553-2 B1
3553-3 C1
3553-4 C1
3554-1 C1
3554-2 C1
3554-3 D1
3554-4 D1
3555-1 D1
3555-2 D1
3555-3 D1
3555-4 E1
3556-1 E1
3556-2 E1
3556-3 E1
3556-4 E1
3557 C3
3558 C3
3561 D3
3562 E3
5551 B3
U109 B3
U111 A5
U112 A5
U113 A5
U114 B5
U115 B5
U116 B5
U117 B5
U118 B5
U119 B5
U120 B5
U121 B5
U122 B5
U123 C5
U124 B5
U202 C5
U203 C5
U410 B5
U411 B5
U413 C5
U421 C5
U442 C5
U456 C5
U457 C5
U467 E1
U513 B1
U514 B1
U515 C1
U516 C1
U517 C1
U518 C1
U519 D1
U522 D1

CHN ECO−	SETNAME F1-15		
CLASS_NO	Panel-Lnterface	3138 158 6078	1
2004-11-26 3	15MF605T/17		
NAME Ison Ku	SUPERS. 12	130 − 10	A3
CHECK	DATE 2004-11-26	© KONINKLIJKE PHILIPS ELECTRONICS N.V. 2004	

551 ~ 599

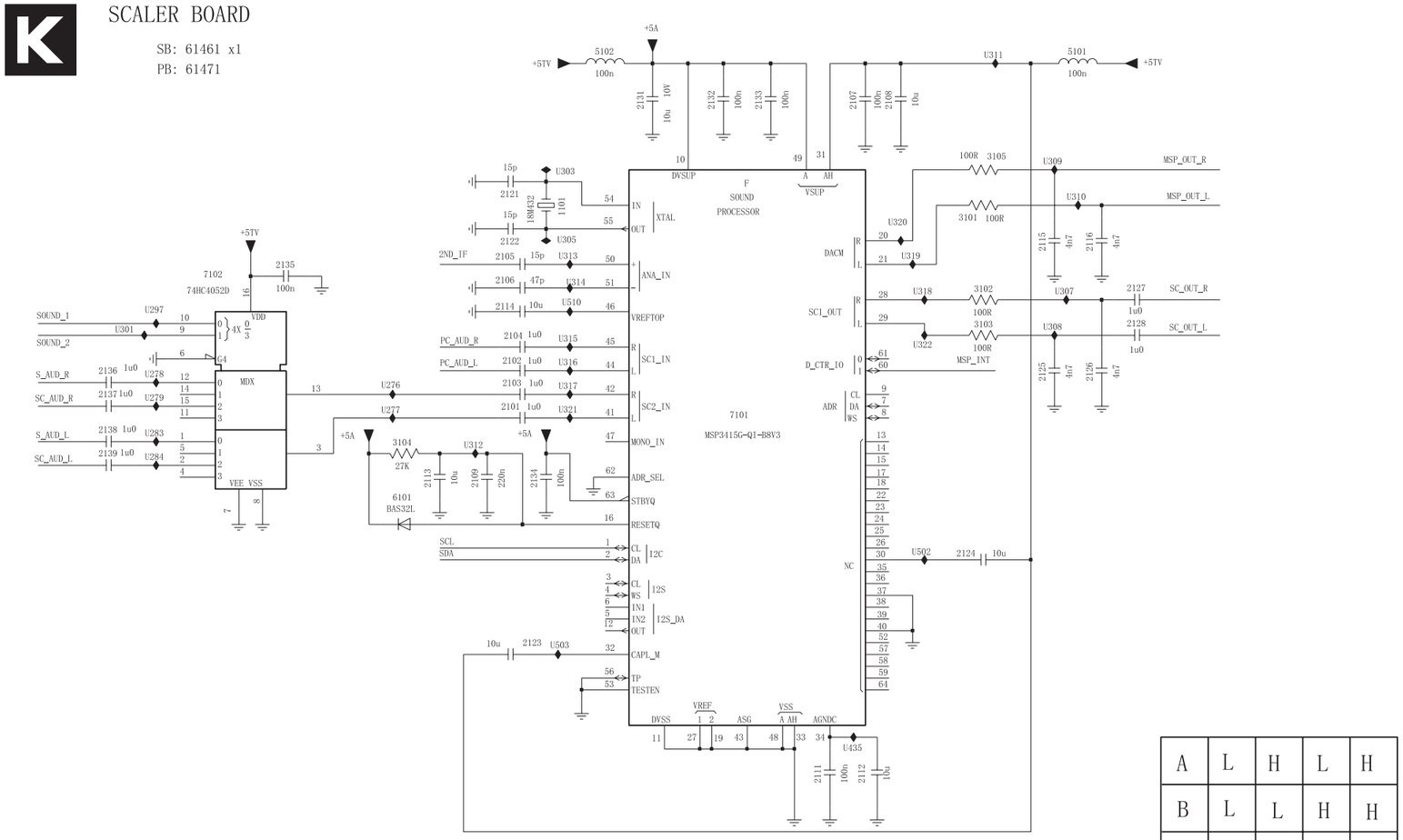
Sound DECODER DIAGRAM

All rights reserved. Reproduction in whole or in parts is prohibited without the written consent of the copyright owner.

Alle rechten voorbehouden. Verveelvuldiging, geheel of gedeeltelijk, is niet toegestaan dan met schriftelijke toestemming van de auteursrechthebbende.

SCALER BOARD

SB: 61461 x1
PB: 61471



A	L	H	L	H
B	L	L	H	H
	X0	X1	X2	X3

1101 B4
2101 C3
2102 C3
2103 C3
2104 B3
2105 B3
2106 B3
2107 A5
2108 A6
2109 C3
2111 E5
2112 E5
2113 C3
2114 B3
2115 B7
2116 B7
2121 A3
2122 B3
2123 D3
2124 D6
2125 C7
2126 C7
2127 B7
2128 B7
2131 A4
2132 A5
2133 A5
2134 C3
2135 B2
2136 C1
2137 C1
2138 C1
2139 C1
3101 B6
3102 B6
3103 B6
3104 C3
3105 A6
5101 A7
5102 A4
6101 C3
7101 C5
7102 B2
U276 C3
U277 C3
U278 C1
U279 C1
U283 C1
U284 C1
U297 B1
U301 B1
U303 A4
U305 B4
U307 B7
U308 B7
U309 A7
U310 A7
U311 A6
U312 C3
U313 B4
U314 B4
U315 B4
U316 B4
U317 C4
U318 B6
U319 B6
U320 B6
U321 C4
U322 B6
U435 E5
U502 D6
U503 D4
U510 B4

CHN ECO-		SETNAME F1-15	
CLASS_NO	SOUND DECODER 15MF605T/17	3138 158 6078	1
2004-11-26 3			
NAME IsonKu	SUPERS. 12	130 - 11	A3
CHECK	DATE 2004-11-26	© KONINKLIJKE PHILIPS ELECTRONICS N.V. 2003	

101 ~ 150

AUDIO Diagram

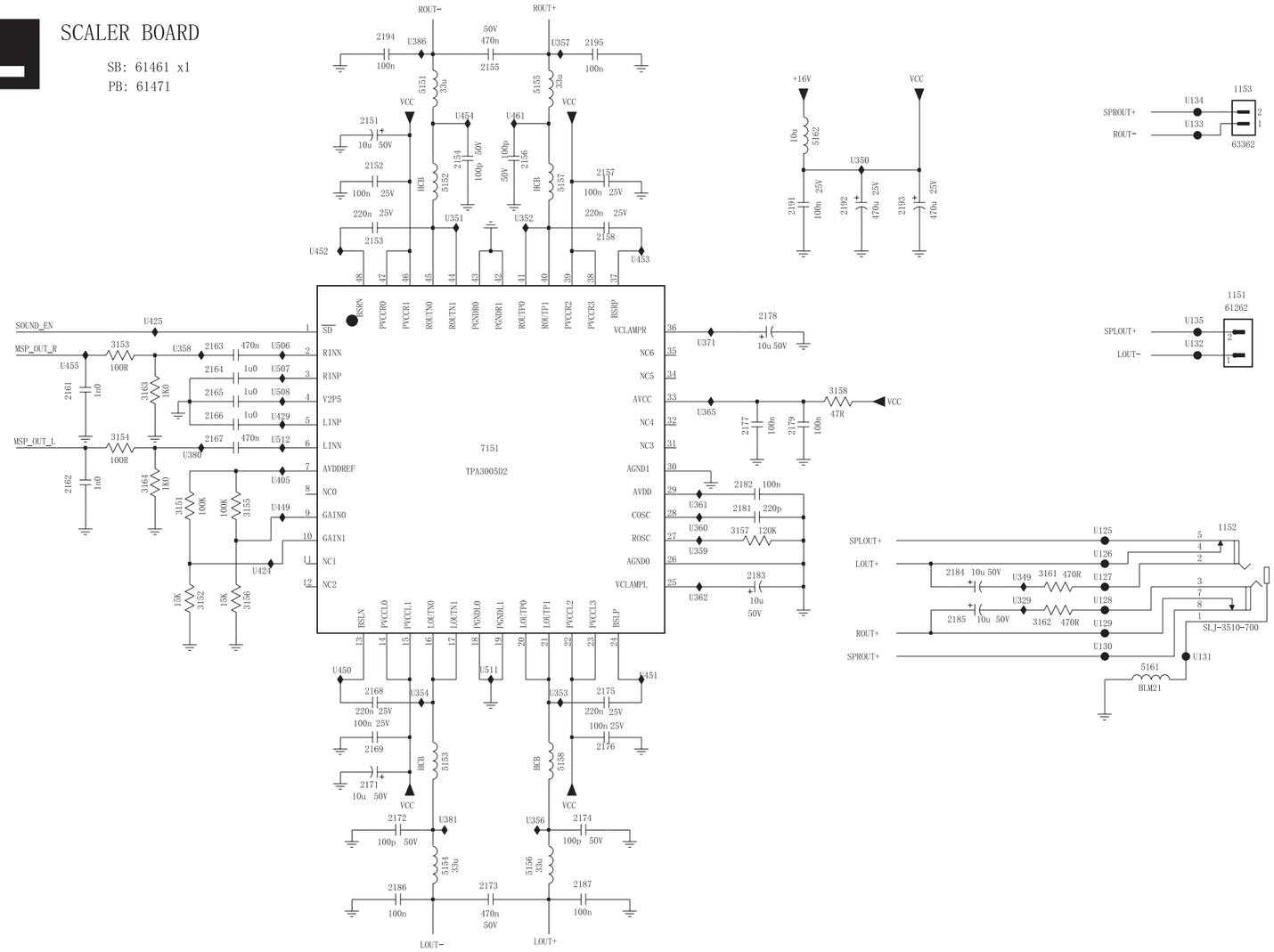
All rights reserved. Reproduction in whole or in parts is prohibited without the written consent of the copyright owner.

Alle rechten voorbehouden. Verveelvuldiging, geheel of gedeeltelijk, is niet toegestaan dan met schriftelijke toestemming van de auteursrechthebbende.

PHILIPS

SCALER BOARD

SB: 61461 x1
PB: 61471



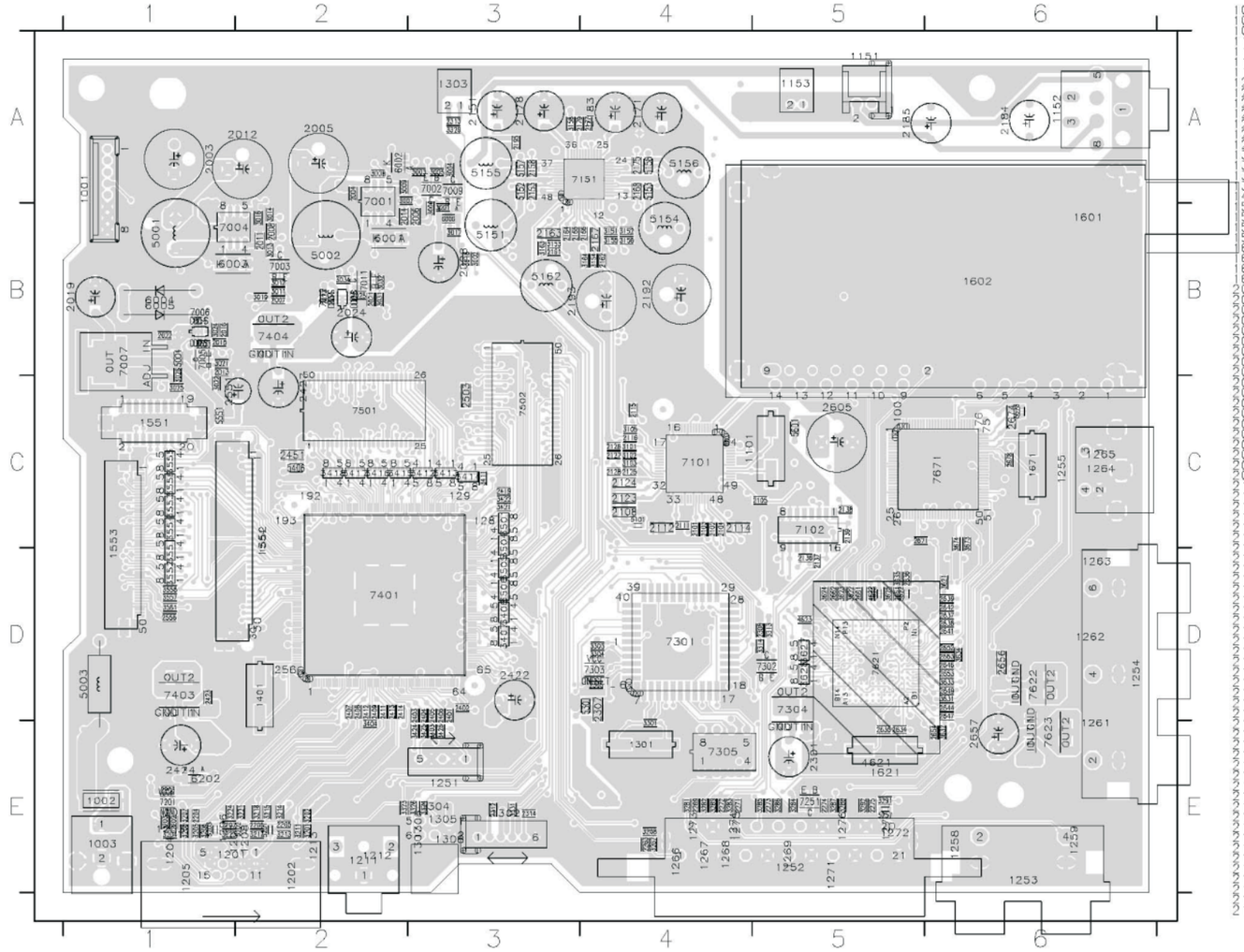
EXCEPT 1151, 1152, 1153, 2151, 2171, 2178, 2183, 2185, 2192, 2193 WERE CHIP COMPONENTS.

1151 B8
1152 C8
1153 A8
2151 A3
2152 A3
2153 A3
2154 A3
2155 A4
2156 A4
2157 A4
2158 A4
2161 B1
2162 C1
2163 B2
2164 B2
2165 B2
2166 C2
2167 C2
2168 D3
2169 E3
2171 E3
2172 E3
2173 E4
2174 E4
2175 D4
2176 E4
2177 C5
2178 B5
2179 C5
2181 C5
2182 D5
2183 D5
2184 D6
2185 D6
2186 E3
2187 E4
2191 A5
2192 A6
2193 A6
2194 A3
2195 A4
3151 C2
3152 D2
3153 B1
3154 C1
3155 C2
3156 D2
3157 C5
3158 B6
3161 D7
3162 D7
3163 B1
3164 C1
5151 A3
5152 A3
5153 E3
5154 E3
5155 A4
5156 E4
5157 A4
5158 E4
5161 D8
5162 A6
7151 C4
U125 C7
U126 C7
U127 D7
U128 D7
U129 D7
U130 D7
U131 D8
U132 B8
U133 A8
U134 A8
U135 B8
U329 D7
U349 D7
U350 A6
U351 A3
U352 A4
U353 D4
U354 D3
U356 E4
U357 A4
U358 B2
U359 C5
U360 C5
U361 C5
U362 D5
U365 C5
U371 B5
U380 C2
U381 E3
U386 A3
U405 C2
U424 D2
U425 B2
U429 C2
U449 C2
U450 D3
U451 D5
U452 B3
U453 B5
U454 A3
U455 B1
U461 A4
U506 B2
U507 B2
U508 B2
U511 D4
U512 C2

CHN ECO-		SETNAME F1-15	
CLASS_NO	AUDIO	3138 158 6078	1
2004-11-26 3	15MF605T/17		
NAME Ison Ku	SUPERS. 12	130 - 12	A3
CHECK	DATE 2004-11-26	© KONINKLIJKE PHILIPS ELECTRONICS N.V. 2004	

151 ` 199

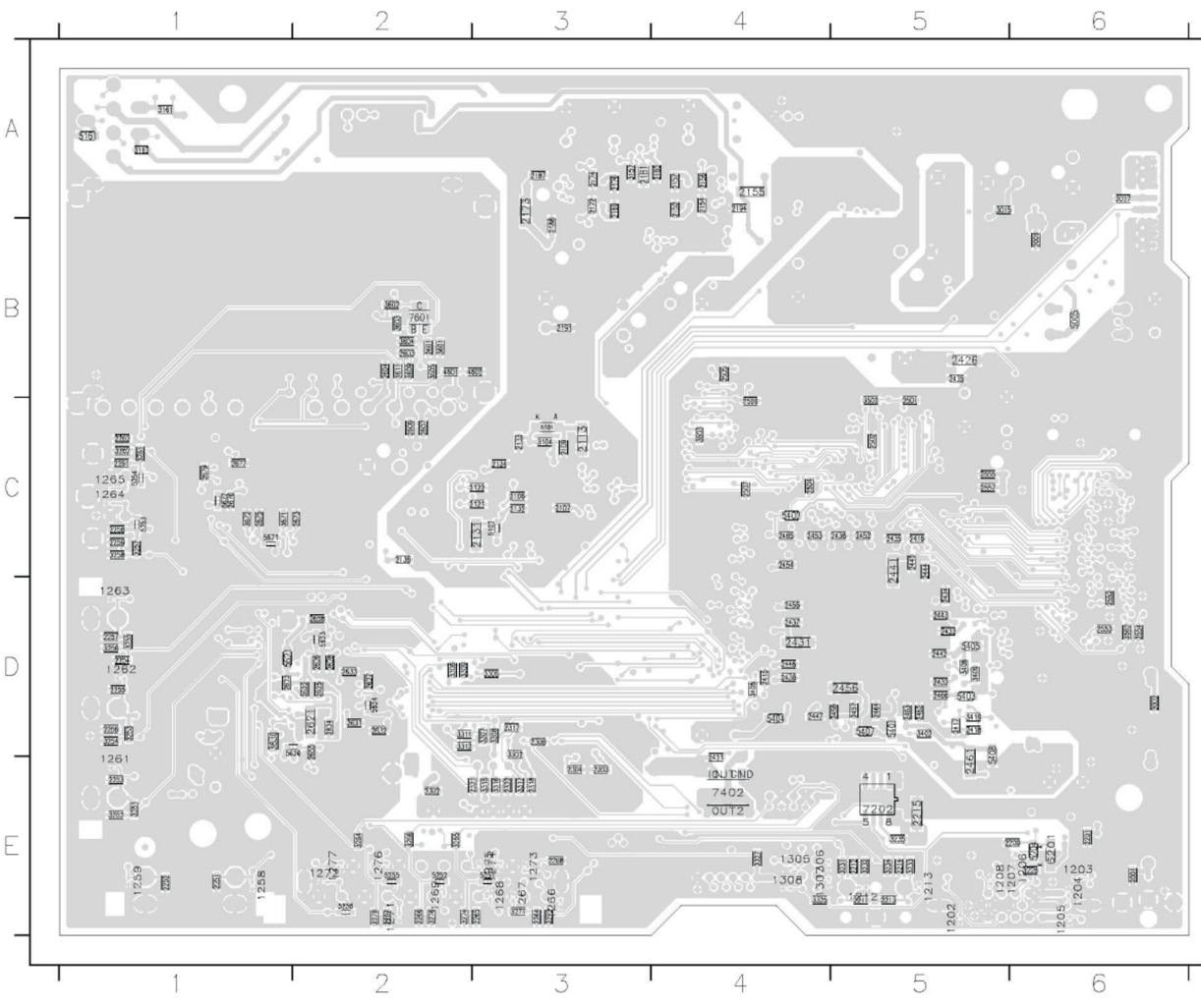
SCALER BOARD C.B.A



ALL RIGHTS ARE RESERVED. REPRODUCTION IN WHOLE OR IN PART IS PROHIBITED WITHOUT THE WRITTEN CONSENT OF THE COPYRIGHT OWNER.

CN: ECO-		MMD T5	
CLASS NO. 3XX000	Scaler Board F1 15MF 605T	3138 103 6146	1 2004-11-26
2004-11-26			
NAME Ison Kuo/IF	SUPERS 2	10 132 - 1	A3
CHECK	DATE 2004-11-26	© Philips Electronics N.V.	

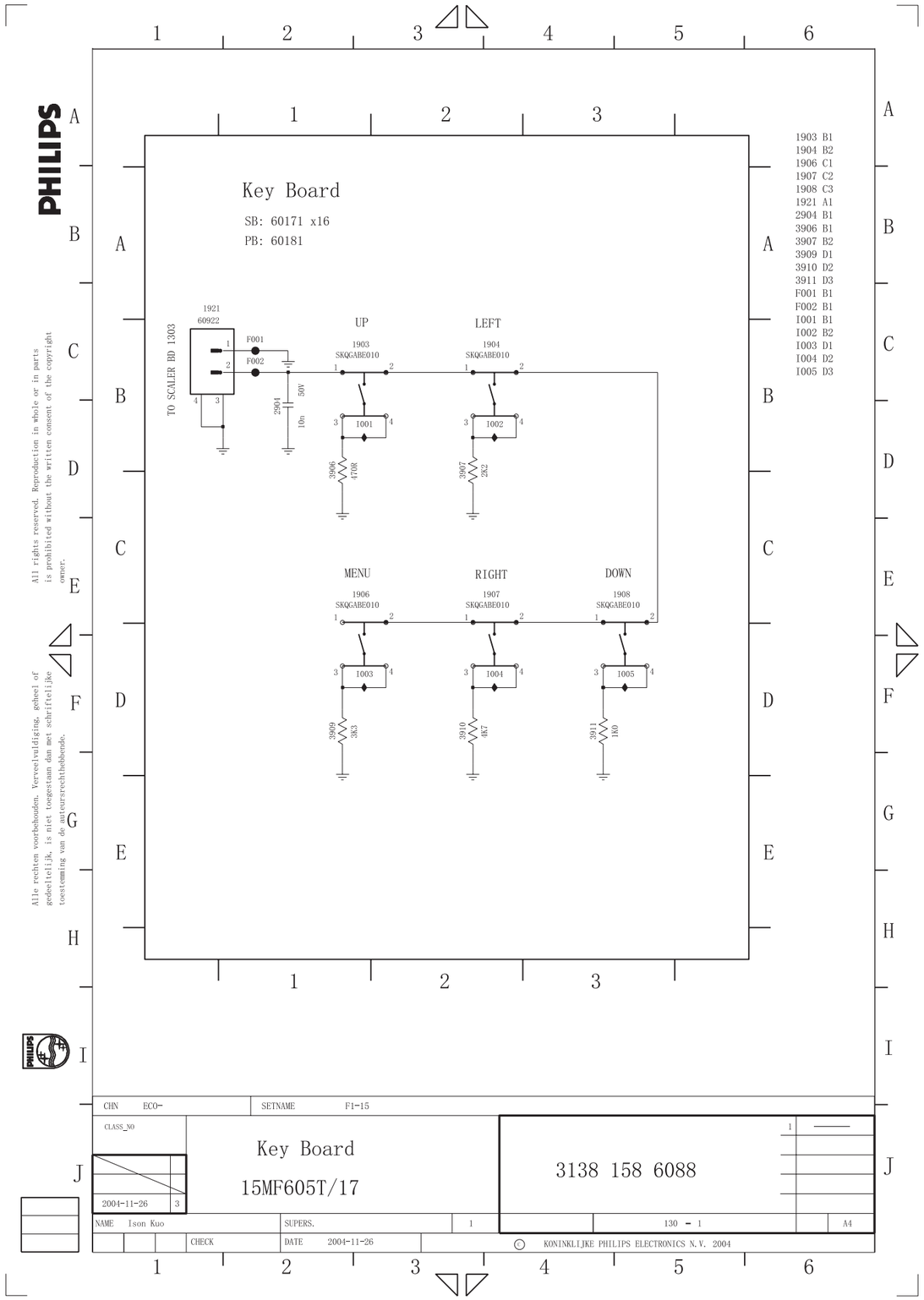
SCALER BOARD C.B.A

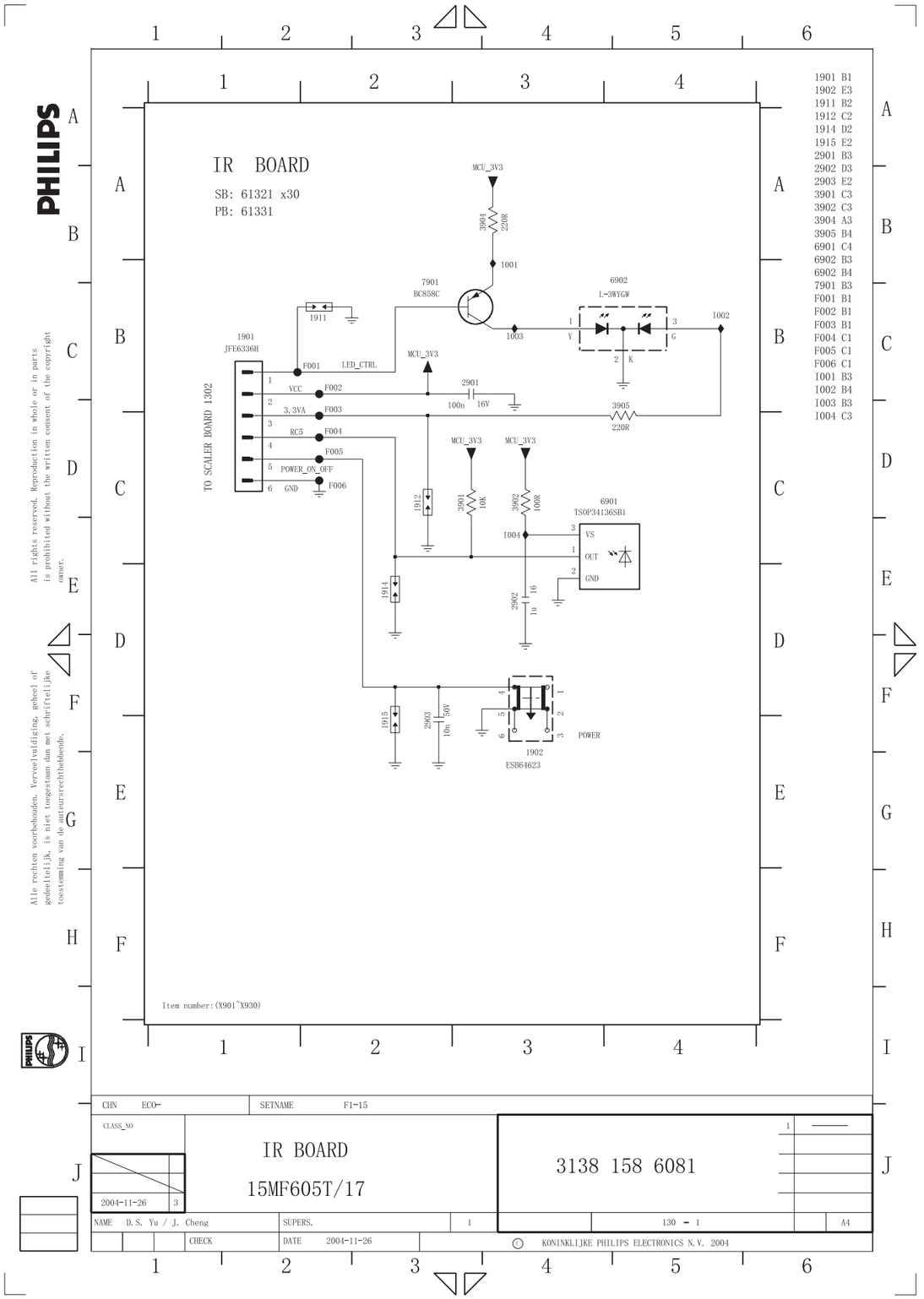


ALL RIGHTS ARE RESERVED. REPRODUCTION IN WHOLE OR IN PART IS PROHIBITED WITHOUT THE WRITTEN CONSENT OF THE COPYRIGHT OWNER.

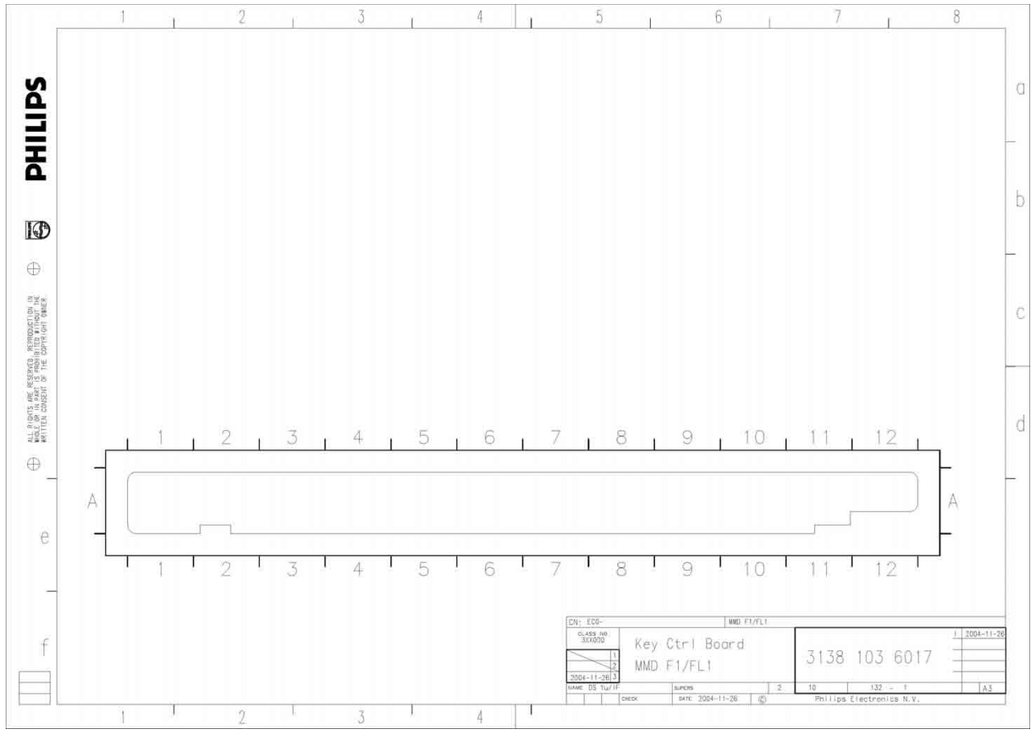
2202	E5	2317	D3
2203	E5	2318	D3
2204	E5	2321	D3
2205	E5	2322	D3
2206	E5	2415	D3
2207	E5	2416	D3
2208	E5	2417	D3
2209	E5	2418	D3
2210	E5	2421	D3
2211	E5	2422	D3
2212	E5	2431	D3
2213	E5	2432	D3
2214	E5	2433	D3
2215	E5	2434	D3
2216	E5	2435	D3
2217	E5	2436	D3
2218	E5	2437	D3
2219	E5	2438	D3
2220	E5	2439	D3
2221	E5	2440	D3
2222	E5	2441	D3
2223	E5	2442	D3
2224	E5	2443	D3
2225	E5	2444	D3
2226	E5	2445	D3
2227	E5	2446	D3
2228	E5	2447	D3
2229	E5	2448	D3
2230	E5	2449	D3
2231	E5	2450	D3
2232	E5	2451	D3
2233	E5	2452	D3
2234	E5	2453	D3
2235	E5	2454	D3
2236	E5	2455	D3
2237	E5	2456	D3
2238	E5	2457	D3
2239	E5	2458	D3
2240	E5	2459	D3
2241	E5	2460	D3
2242	E5	2461	D3
2243	E5	2462	D3
2244	E5	2463	D3
2245	E5	2464	D3
2246	E5	2465	D3
2247	E5	2466	D3
2248	E5	2467	D3
2249	E5	2468	D3
2250	E5	2469	D3
2251	E5	2470	D3
2252	E5	2471	D3
2253	E5	2472	D3
2254	E5	2473	D3
2255	E5	2474	D3
2256	E5	2475	D3
2257	E5	2476	D3
2258	E5	2477	D3
2259	E5	2478	D3
2260	E5	2479	D3
2261	E5	2480	D3
2262	E5	2481	D3
2263	E5	2482	D3
2264	E5	2483	D3
2265	E5	2484	D3
2266	E5	2485	D3
2267	E5	2486	D3
2268	E5	2487	D3
2269	E5	2488	D3
2270	E5	2489	D3
2271	E5	2490	D3
2272	E5	2491	D3
2273	E5	2492	D3
2274	E5	2493	D3
2275	E5	2494	D3
2276	E5	2495	D3
2277	E5	2496	D3
2278	E5	2497	D3
2279	E5	2498	D3
2280	E5	2499	D3
2281	E5	2500	D3
2282	E5	2501	D3
2283	E5	2502	D3
2284	E5	2503	D3
2285	E5	2504	D3
2286	E5	2505	D3
2287	E5	2506	D3
2288	E5	2507	D3
2289	E5	2508	D3
2290	E5	2509	D3
2291	E5	2510	D3
2292	E5	2511	D3
2293	E5	2512	D3
2294	E5	2513	D3
2295	E5	2514	D3
2296	E5	2515	D3
2297	E5	2516	D3
2298	E5	2517	D3
2299	E5	2518	D3
2300	E5	2519	D3
2301	E5	2520	D3
2302	E5	2521	D3
2303	E5	2522	D3
2304	E5	2523	D3
2306	E5	2524	D3
2307	E5	2525	D3
2308	E5	2526	D3
2309	E5

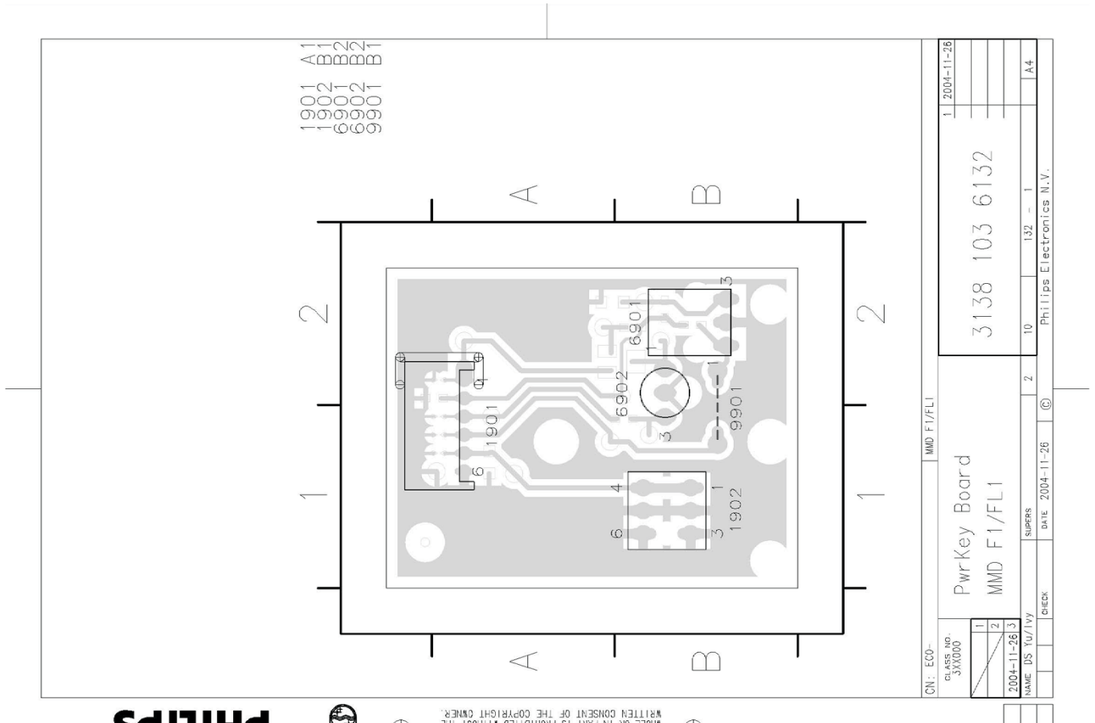
KEY AND IR BOARD DIAGRAM

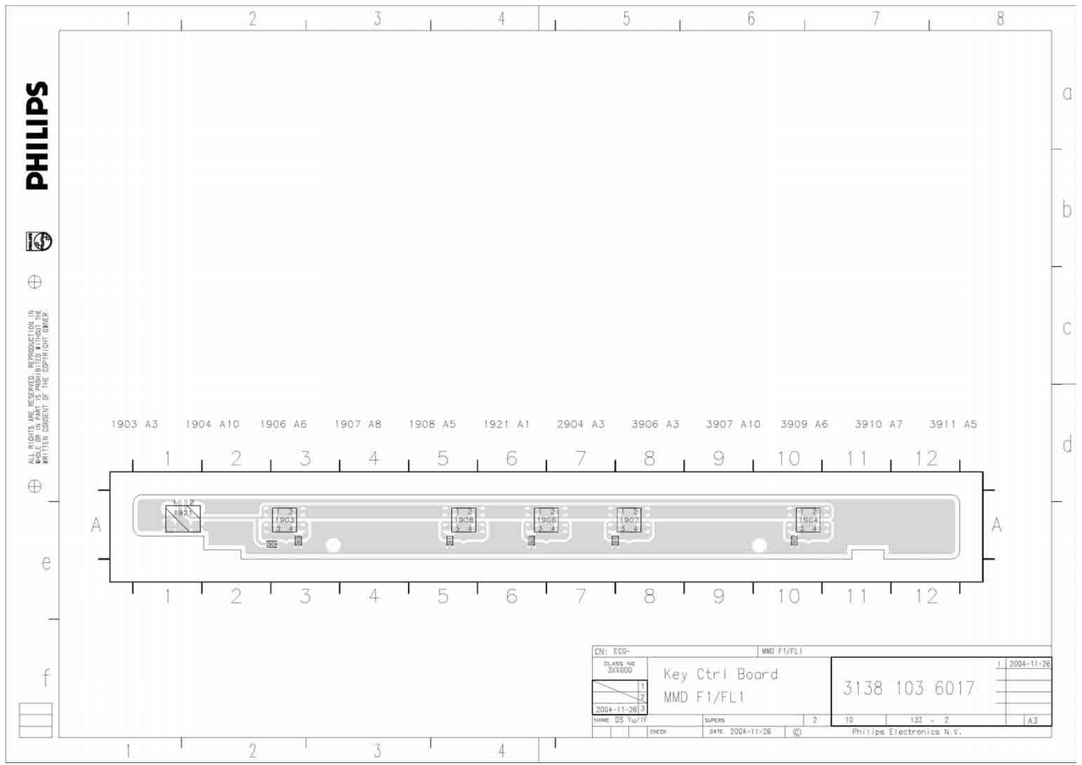


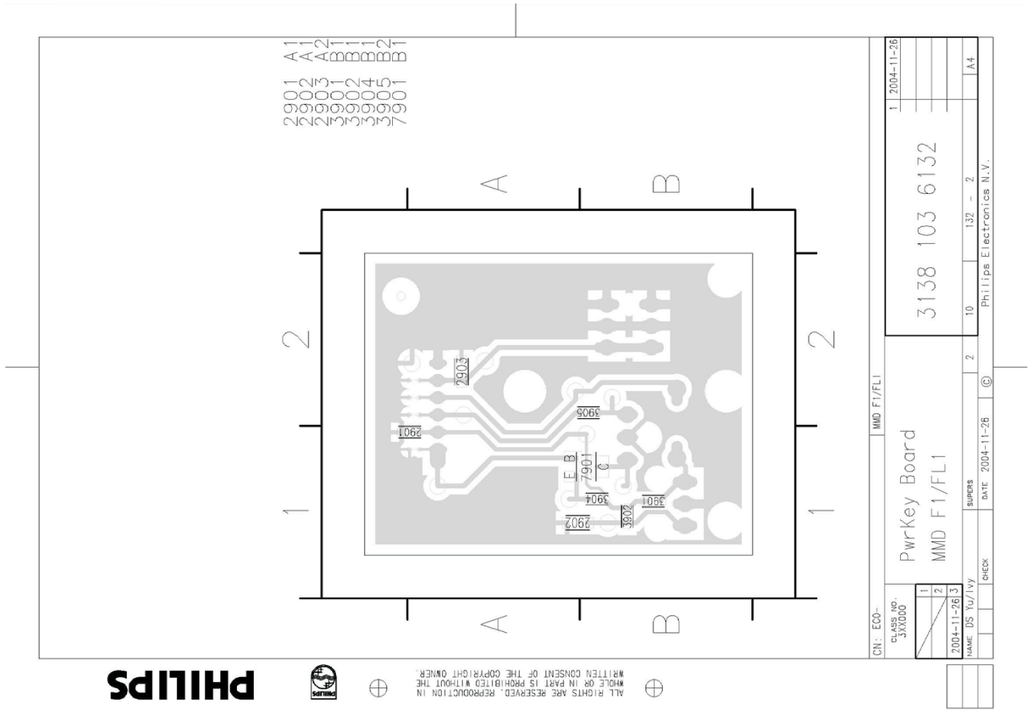


KEY AND IR BOARD C.B.A

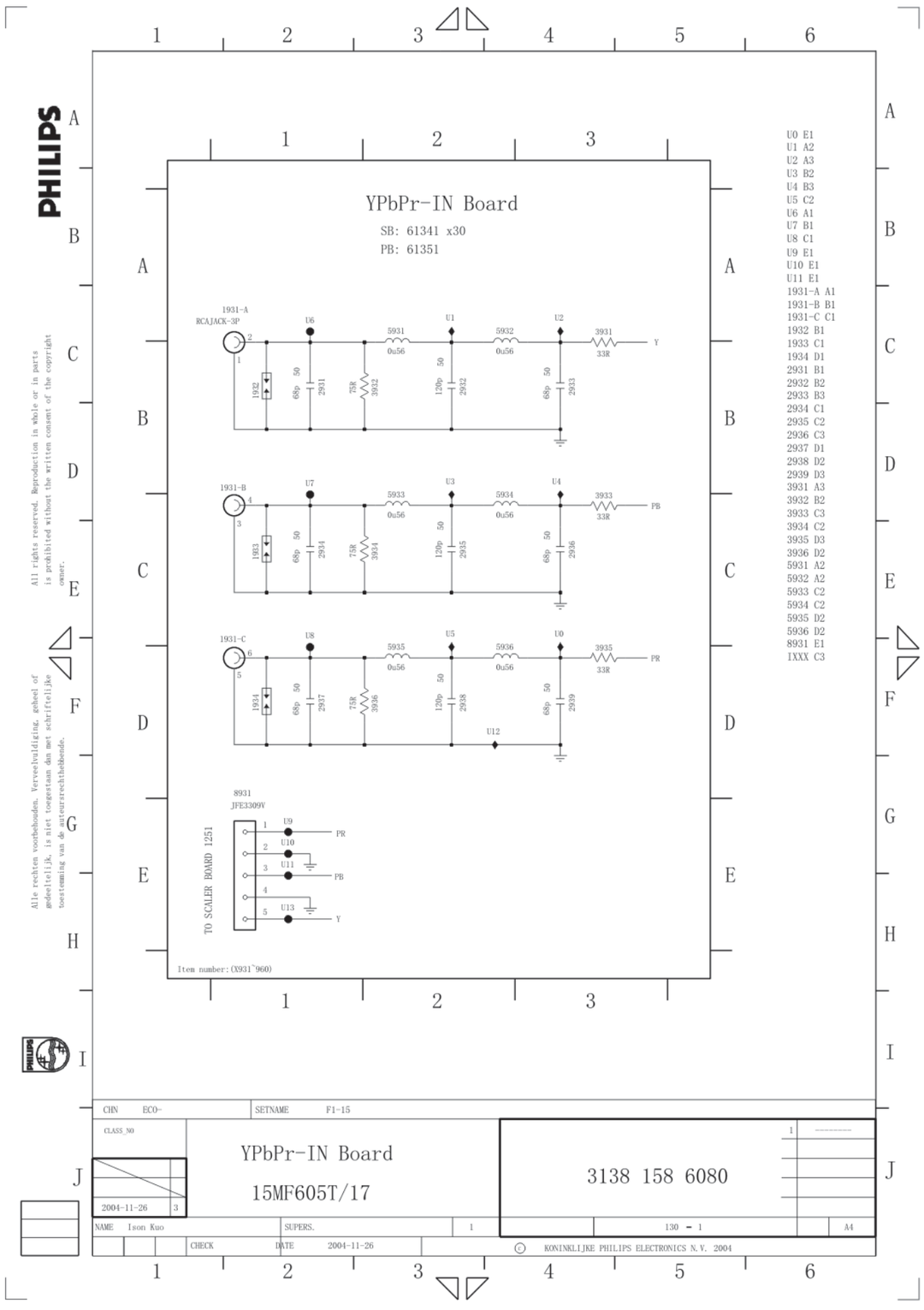


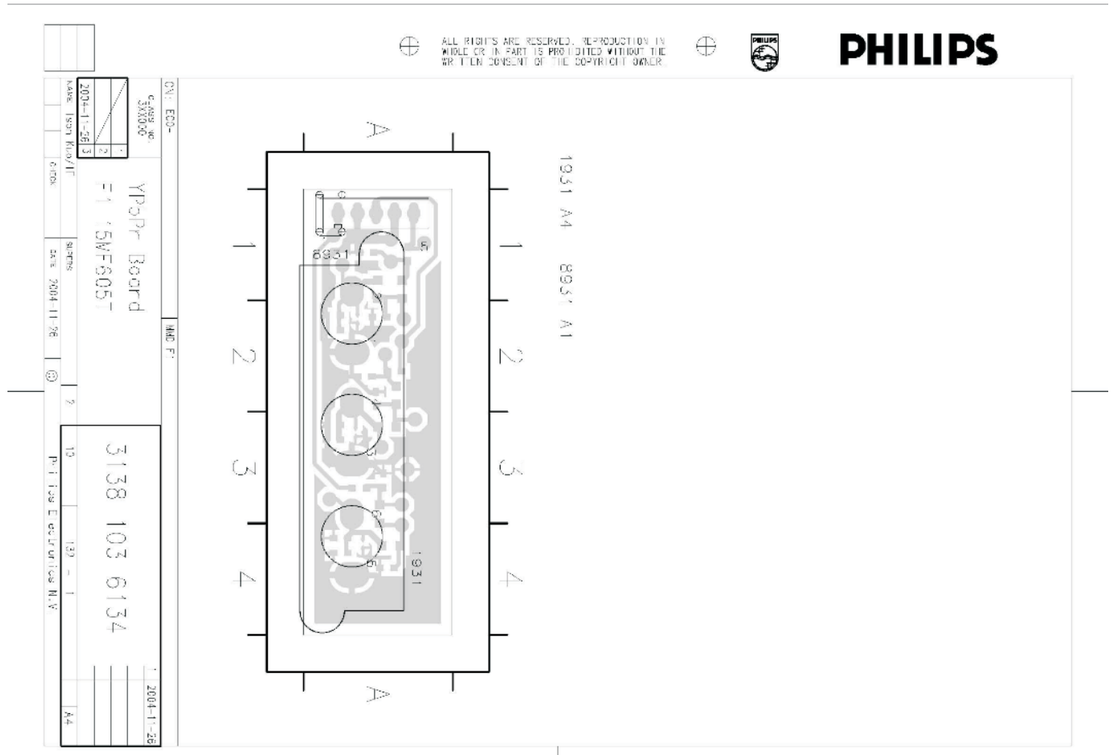


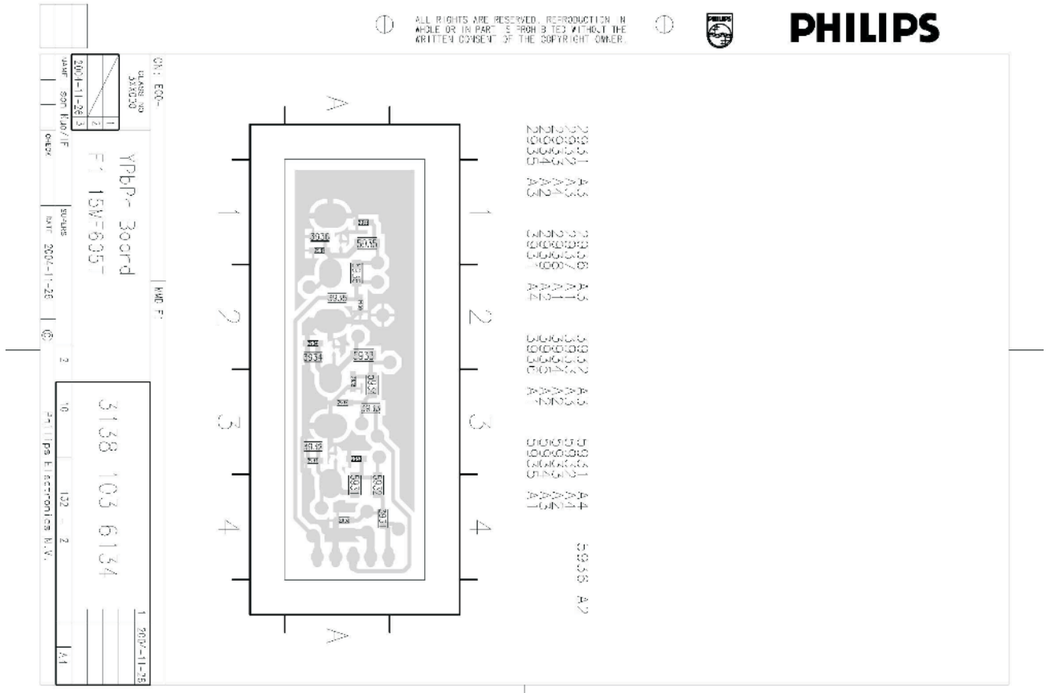




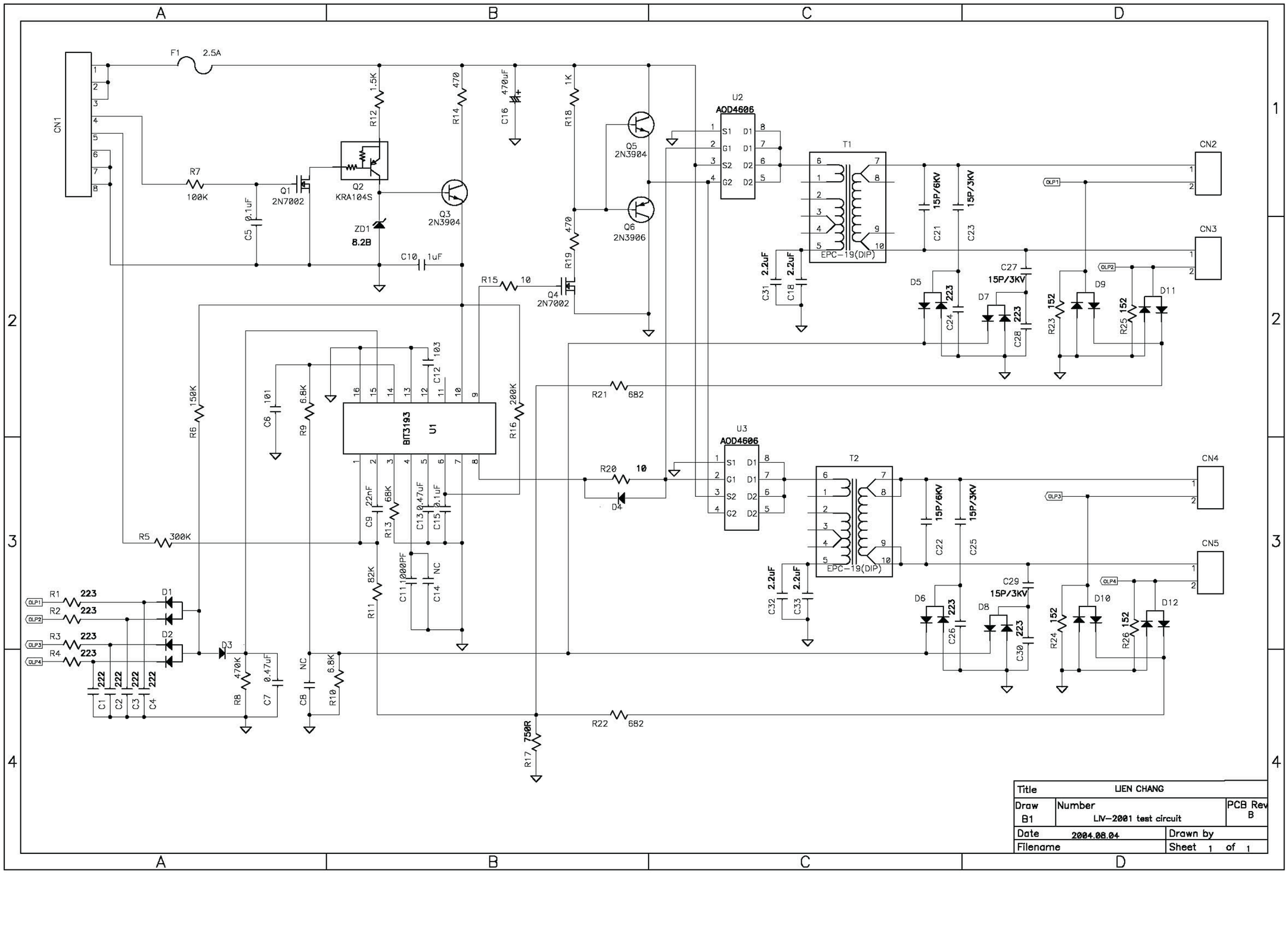
YPbPr-IN BOARD AND C.B.A



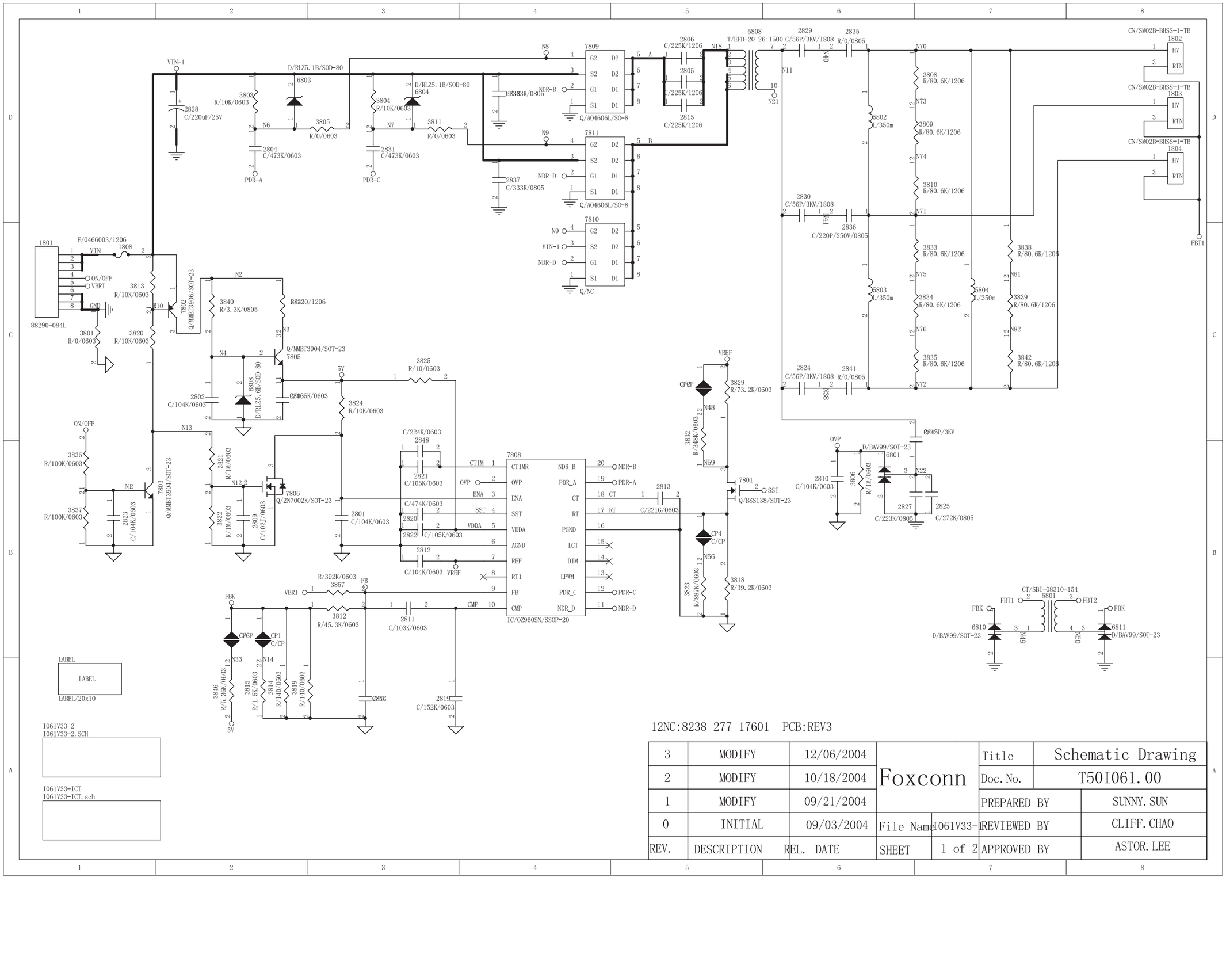

ALL RIGHTS ARE RESERVED. REPRODUCTION IN WHOLE OR IN PART IS PROHIBITED WITHOUT THE WRITTEN CONSENT OF THE COPYRIGHT OWNER.
PHILIPS
YPbPr Board
F1 15MF605T
3138 103 6134
1931 A1 6931 A1



Inverter board diagram(15MF605T/17)



Inverter board diagram(20MF605T/17)



12NC:8238 277 17601 PCB:REV3

REV.	DESCRIPTION	REL. DATE
3	MODIFY	12/06/2004
2	MODIFY	10/18/2004
1	MODIFY	09/21/2004
0	INITIAL	09/03/2004

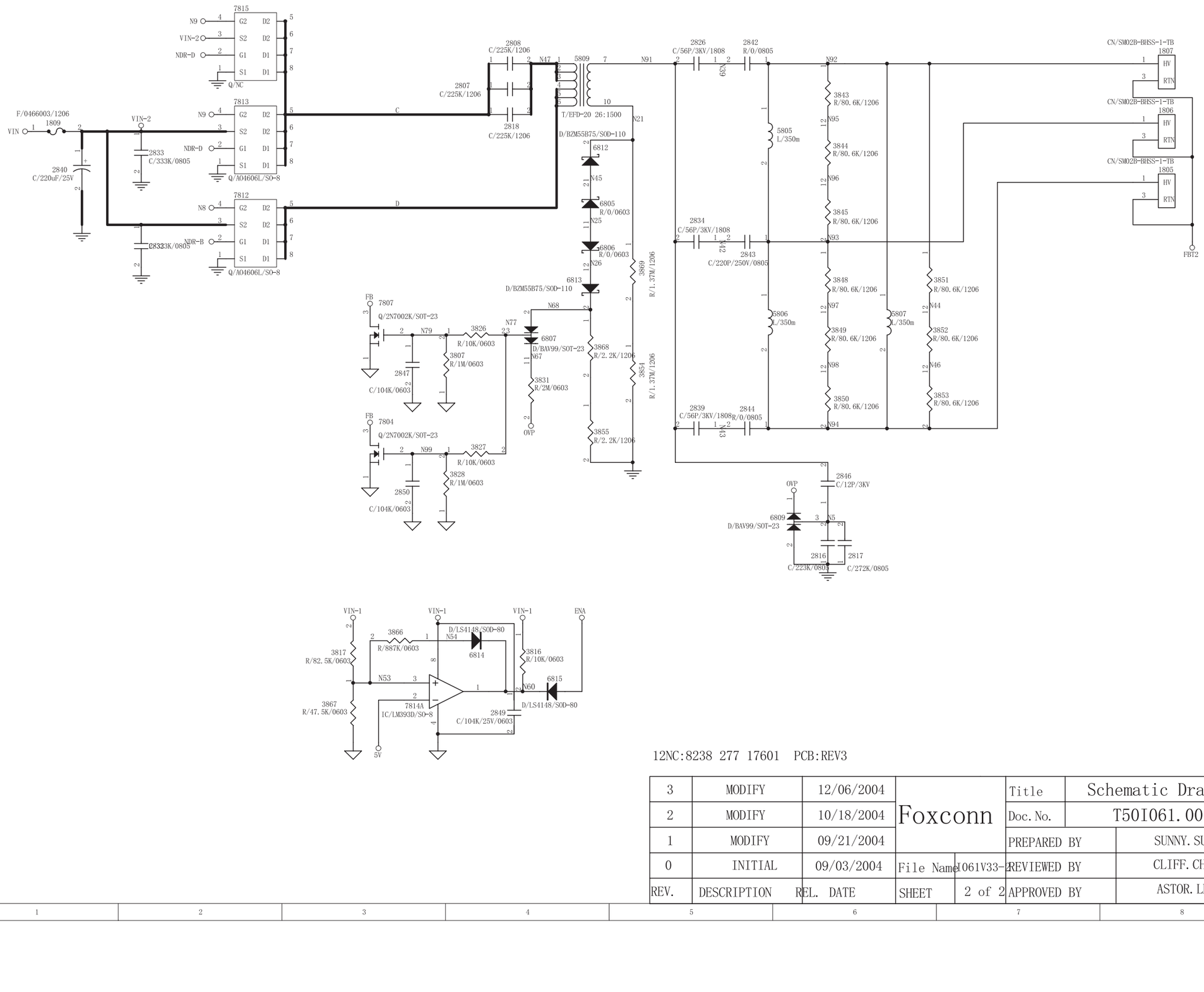
Foxconn

File Name I061V33-

SHEET 1 of 2

Title	Schematic Drawing
Doc. No.	T50I061.00
PREPARED BY	SUNNY.SUN
REVIEWED BY	CLIFF.CHAO
APPROVED BY	ASTOR.LEE

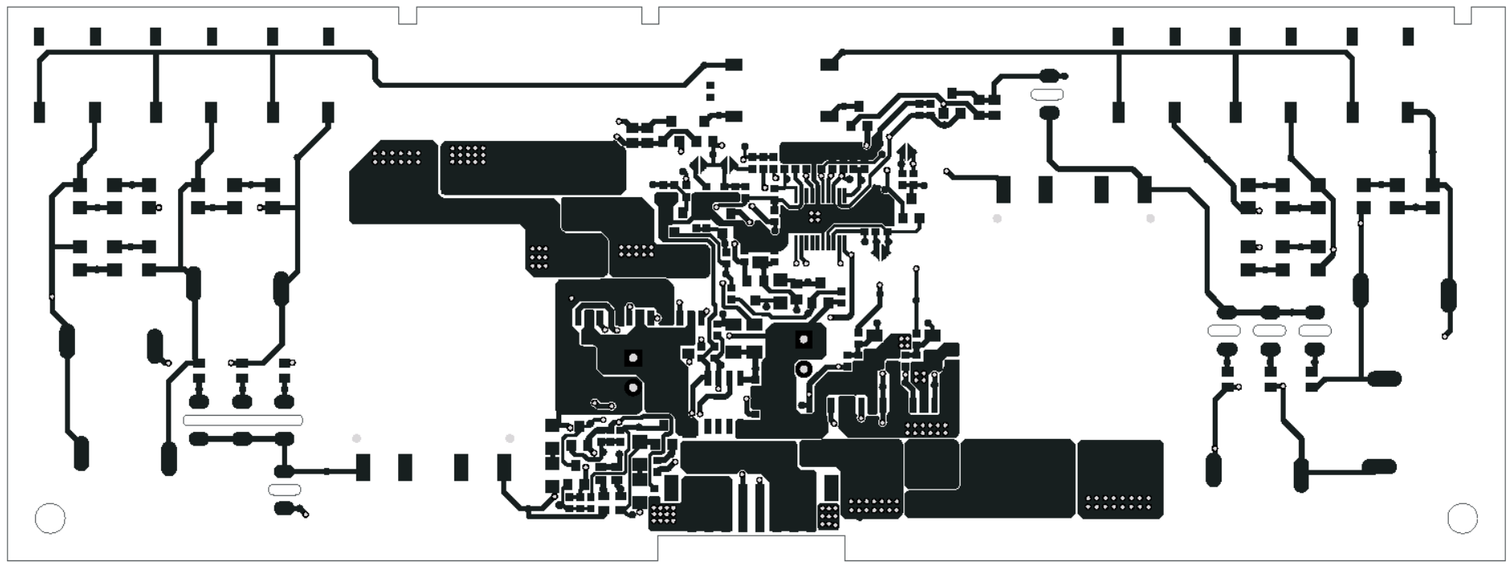
Inverter board diagram(20MF605T/17)



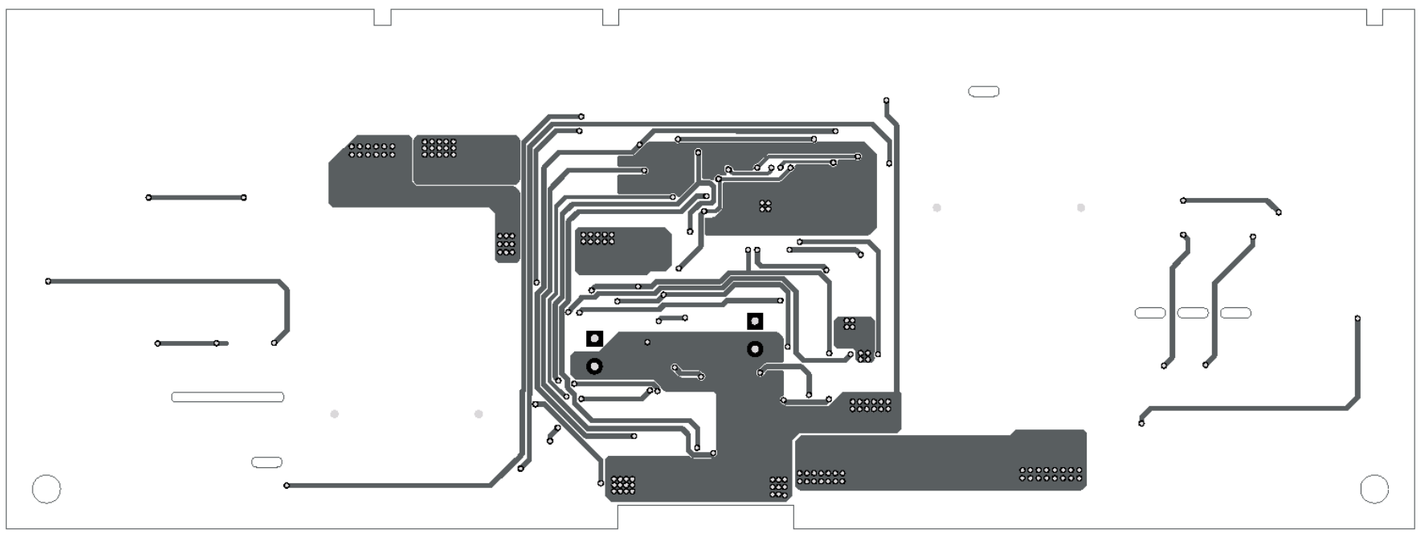
12NC:8238 277 17601 PCB:REV3

REV.	DESCRIPTION	REL. DATE			Title	Schematic Drawing
3	MODIFY	12/06/2004	Foxconn		Doc. No.	T50I061.00
2	MODIFY	10/18/2004			PREPARED BY	SUNNY.SUN
1	MODIFY	09/21/2004	File Name	T061V33-2	REVIEWED BY	CLIFF.CHAO
0	INITIAL	09/03/2004	SHEET	2 of 2	APPROVED BY	ASTOR.LEE

Inverter board C.B.A(20MF605T/17)



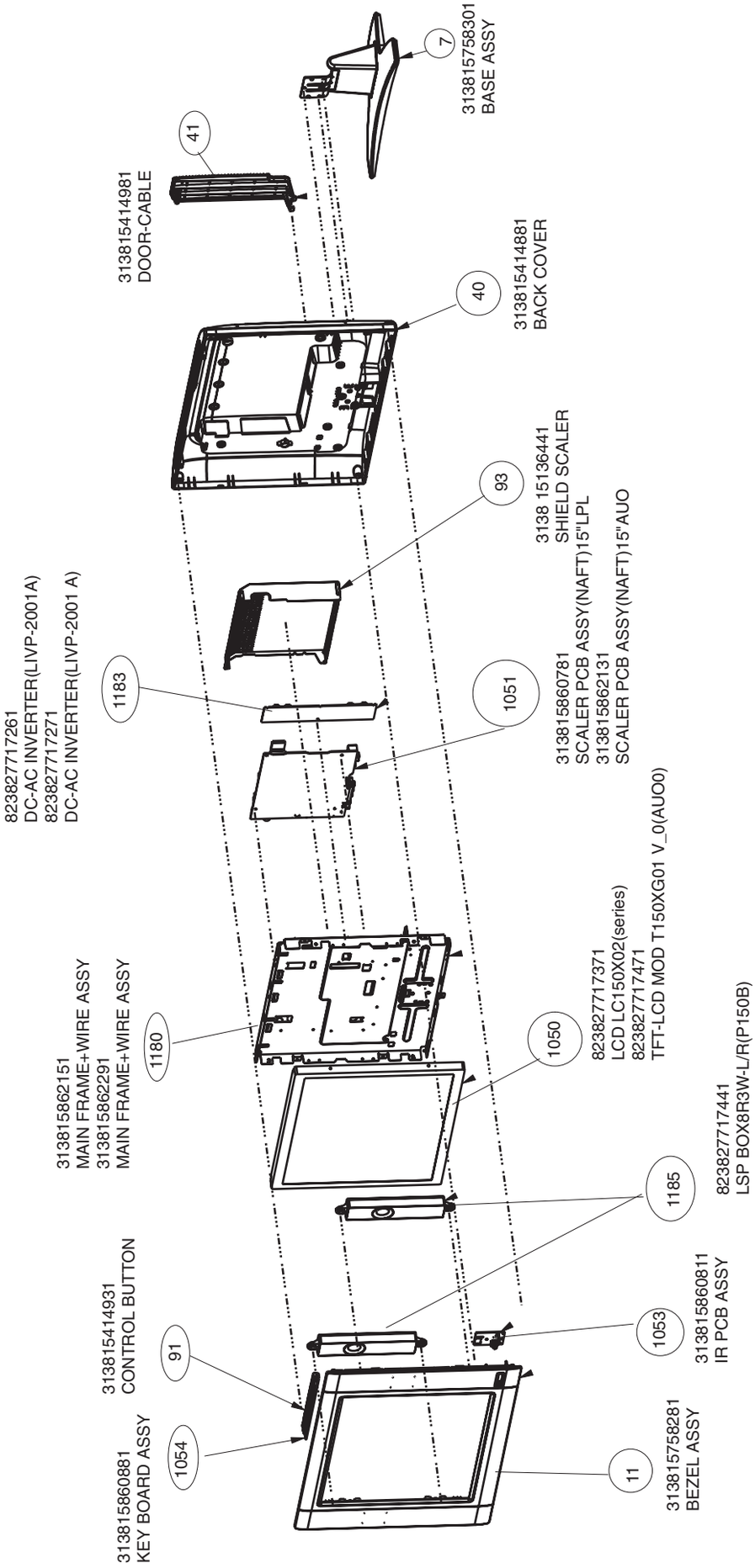
Foxconn	FILM NUMBER	T50I061-00-2C1 -04	
SCALE 10MM	Mechanical Layer 1		
	P/N	19.2096.33	
	Rev.	33	7-Dec-2004



Foxconn	FILM NUMBER	T50I061-00-2C2 -04	
SCALE 10MM	Mechanical Layer 1		
	P/N	19.2096.33	
	Rev.	33	7-Dec-2004

Go to cover page

Exploded View



Recommended Parts List

Go to cover page

0011	313815758281	BEZEL ASSY
0030	313815414871	BEZEL
0031	313815414921	LENS-IR
0032	313815414911	POWER BUTTON
0007	313815758301	BASE ASSY
0040	313815414881	BACK COVER
0090	313815523361	PLASTIC COVER
0091	313815414931	CONTROL BUTTON
0092	313815522331	SMART TIPS-WALL MOUNTING
7901	932217439685	TRA SIG SM BC857C (KEC0) R
6901	313815862261	IR + HOLDER ASSY
6901	932220313667	IR RECEIVER TSOP34136SB1 L
6902	313815862171	LED + HOLDER ASSY
6902	932214603682	LED VS L-3WYGW (KIEL) B
6001	932221745685	DIO REC SM SSA34 (VISH) R
6002	932220347685	DIO REG SM BZX84-B16 (VISH) R
6003	932221745685	DIO REC SM SSA34 (VISH) R
6006	933913910115	DIO SIG SM BAS32L (PHSE) R
6101	933913910115	DIO SIG SM BAS32L (PHSE) R
6201	933913910115	DIO SIG SM BAS32L (PHSE) R
6202	933913910115	DIO SIG SM BAS32L (PHSE) R
7001	932219076668	IC SM L5972D (ST00) R
7002	932217438685	TRA SIG SM BC847C (KEC0) R
7003	932217438685	TRA SIG SM BC847C (KEC0) R
7004	932219076668	IC SM L5972D (ST00) R
7005	932217438685	TRA SIG SM BC847C (KEC0) R
7006	932216638668	FET POW SM SI5441DC-E3 (VISH)R
7009	932217438685	TRA SIG SM BC847C (KEC0) R
7011	932217438685	TRA SIG SM BC847C (KEC0) R
7012	932216638668	FET POW SM SI5441DC-E3 (VISH)R
7101	932219412671	IC SM MSP3445G-QI-B8V3(MIAS) Y
7102	933714830653	IC SM 74HC4052D (PHSE) R
7151	932222035668	IC SM TPA3005D2PHP (TI00) R
7201	935245720165	IC SM 74HCT1G14GW (PHSE) R
7202	932216972682	IC SM AT24C02N-10SC-2.7(ATME)L
7301	313815862181	CPU ASSY (LPL -F1 15")
7301	823827716771	NT68F632AL CPU
7302	932217438685	TRA SIG SM BC847C (KEC0) R
7303	932219183685	IC SM LM809M3-2.93 NOPB(NSC0)R
7304	932222076668	IC SM AME1117CCGTZ (ST00) R
7305	313815862211	EEPROM ASSY (LPL-F1 15")
7305	932218650682	IC AT24C16A-10PI-2.7 (ATME) L
7401	932222013671	IC SM MST51512L-LF (MSTA) Y
7402	932222075668	IC SM AME1117BCGTZ (ST00) R
7403	932222076668	IC SM AME1117CCGTZ (ST00) R
7404	932222076668	IC SM AME1117CCGTZ (ST00) R
7502	932216677682	IC SM M12L16161A-7T (ESMT) L
7501	932216677682	IC SM M12L16161A-7T (ESMT) L
7621	935276561518	IC SM SAA7119E/V2/G (PHSE) R
7622	932222077668	IC SM AME1117ECGTZ (ST00) R
7623	932222076668	IC SM AME1117CCGTZ (ST00) R

Model: 15MF605T/17

Mechanical parts

0011	313815758281	BEZEL ASSY
0030	313815414871	BEZEL
0031	313815414921	LENS-IR
0032	313815414911	POWER BUTTON
0007	313815758301	BASE ASSY
0040	313815414881	BACK COVER
0090	313815523361	PLASTIC COVER
0091	313815414931	CONTROL BUTTON
0092	313815522331	SMART TIPS-WALL MOUNTING

LCD Panel

1050	823827717371	LCD LC150X02 (series)

PACKING

0450	313815639351	CARTON
0451	313815639341	CUSHION-LEFT
0452	313815639331	CUSHION-RIGHT
0453	313815621481	P.E.BAG
0458	313815636361	P.E.BAG 275x320 mm

Accessory

4444	313810610443	CD ROM - SERVICE MANUAL
4444	313810610444	SERVICE MANUAL
0291	313815565881	LABEL-EEPROM-LPL
0615	313811708201	HEX CODE OF F/W (NO MATL REQ)
0292	313815565881	LABEL-EEPROM-LPL
0145	313815523431	Owner's manual
0041	313815414891	DOOR-CABLE

PCB ASSY

1051	313815860781	SCALER PCB ASSY (NAFT)15"LPL
1052	313815860801	YPbPr-IN PCB ASSY
1053	313815860811	IR PCB ASSY
1054	313815860881	KEY BOARD ASSY

Miscellanea

1305	243803100435	SOC IC V 8P F 2.54 DIL L
8175	313819874531	CBLE -018 8/100/8-018 AWG28
1001	242202518821	CON V 8P M 2.00 63388 B
1002	242208611053	FUSE SM F 7A 125V UL R
1003	242202605309	SOC SUPP H 1P M DC 2.5MM L
1101	242254301364	RES XTL SM 18M432 16P SMD-49 R
1151	242202518888	CON H 2P M 2.50 69072 B
1152	313816877251	EARPHONE JACK
1153	242202518894	CON H 2P M 2.00 63362 B
1201	242202518053	SOC SUBD H 15P F BU 1216 B
1211	243803100429	SOC PHONE H 1P F 3.5 ST B
1251	242202518817	CON V 5P M 2.00 63385 B
1253	242202605451	SOC CINCH H 2P F 1L2 WHRD B
1254	242202605452	SOC CINCH H 3P F 1L3 YEWHRD B
1301	823827716691	CRYSTAL 11.0592MHZ
1302	242202518818	CON V 6P M 2.00 63386 B
1303	242202518894	CON H 2P M 2.00 63362 B
1401	243854300086	RES XTL SM 14M318 18P HC49/S R
1501	313815862241	SDRAM ASSY(ESMT)
1172	313818870491	MAINSCORD UL 10A 1M8 DET BK
1175	908210090002	BAT ZNC 1.5V 820MAH AA 2-PACK
1176	823827717511	REMOTE CONTROL RC1112713/17
1177	313818876621	CON ACC ADP V 01P M 0.00/NTSC
1180	313815862151	MAIN FRAME + WIRE ASSY
8161	313819874541	CBLE -266 6/290/6-266 AWG28
1183	823827717261	DC-AC INVERTER
1184	823827717461	AC/DC ADAPTER 16V 60W
1185	823827717441	LSP BOX 8R 3W-L/R (P150B)
8174	313819874571	CBLE - 104 20/230/20 -032AWG28
8176	313819874581	CBLE - 012 2/100/2-001 AWG28
1551	242202505567	CON V 20P M 1.25 SM 60947 R
1601	313914722661	FRONTEND FQ1236/F H-5
1621	243854300089	RES XTL SM 24M576 16P HC49/S R

PCB ASSY

1051	313815860781	SCALER PCB ASSY (NAFT)15"LPL

2001	223858619812	CER2 0603 Y5V 50V 100N P8020 R
2002	223858619812	CER2 0603 Y5V 50V 100N P8020 R
2009	223891619849	CER2 0603 Y5V 25V 100N P8020 R
2113	222224119876	CER2 1206 Y5V 10V 10U P8020 R
2121	223886715159	CER1 0603 NP0 50V 15P PM5 R
2122	223886715159	CER1 0603 NP0 50V 15P PM5 R
2131	222224119876	CER2 1206 Y5V 10V 10U P8020 R
2132	223878615649	CER2 0603 X7R 16V 100N PM10 R
2133	223878615649	CER2 0603 X7R 16V 100N PM10 R
2134	223878615649	CER2 0603 X7R 16V 100N PM10 R
2135	223878615649	CER2 0603 X7R 16V 100N PM10 R
2152	223891619849	CER2 0603 Y5V 25V 100N P8020 R
2154	223886715101	CER1 0603 NP0 50V 100P PM5 R
2155	223858119716	CER2 1206 Y5V 50V 470N PM20 R
2156	223886715101	CER1 0603 NP0 50V 100P PM5 R
2157	223891619849	CER2 0603 Y5V 25V 100N P8020 R
2169	223891619849	CER2 0603 Y5V 25V 100N P8020 R
2172	223886715101	CER1 0603 NP0 50V 100P PM5 R
2173	223858119716	CER2 1206 Y5V 50V 470N PM20 R
2174	223886715101	CER1 0603 NP0 50V 100P PM5 R
2176	223891619849	CER2 0603 Y5V 25V 100N P8020 R
2181	223886115221	CER1 0805 NP0 50V 220P PM5 R
2182	223878615649	CER2 0603 X7R 16V 100N PM10 R
2186	223891619849	CER2 0603 Y5V 25V 100N P8020 R
2187	223891619849	CER2 0603 Y5V 25V 100N P8020 R
2191	223891619849	CER2 0603 Y5V 25V 100N P8020 R
2194	223891619849	CER2 0603 Y5V 25V 100N P8020 R
2201	223878615649	CER2 0603 X7R 16V 100N PM10 R
2209	223878615649	CER2 0603 X7R 16V 100N PM10 R
2211	223886715331	CER1 0603 NP0 50V 330P PM5 R
2212	223886715331	CER1 0603 NP0 50V 330P PM5 R
2213	223886715331	CER1 0603 NP0 50V 330P PM5 R
2214	223886715331	CER1 0603 NP0 50V 330P PM5 R
2215	222224119876	CER2 1206 Y5V 10V 10U P8020 R
2251	223886715331	CER1 0603 NP0 50V 330P PM5 R
2252	223886715331	CER1 0603 NP0 50V 330P PM5 R
2253	223886715101	CER1 0603 NP0 50V 100P PM5 R
2254	223886715331	CER1 0603 NP0 50V 330P PM5 R
2255	223886715331	CER1 0603 NP0 50V 330P PM5 R
2256	223886715331	CER1 0603 NP0 50V 330P PM5 R
2257	223886715331	CER1 0603 NP0 50V 330P PM5 R
2258	223886715101	CER1 0603 NP0 50V 100P PM5 R
2259	223886715229	CER1 0603 NP0 50V 22P PM5 R
2261	223886715101	CER1 0603 NP0 50V 100P PM5 R
2262	223886715229	CER1 0603 NP0 50V 22P PM5 R
2302	223878615649	CER2 0603 X7R 16V 100N PM10 R
2303	223886715229	CER1 0603 NP0 50V 22P PM5 R
2304	223886715229	CER1 0603 NP0 50V 22P PM5 R
2306	223886715109	CER1 0603 NP0 50V 10P PM5 R
2317	223878615649	CER2 0603 X7R 16V 100N PM10 R
2318	223878615649	CER2 0603 X7R 16V 100N PM10 R
2321	223886715229	CER1 0603 NP0 50V 22P PM5 R
2322	223886715229	CER1 0603 NP0 50V 22P PM5 R
2415	223858615636	CER2 0603 X7R 50V 10N PM10 R
2416	223878615649	CER2 0603 X7R 16V 100N PM10 R
2417	223886715229	CER1 0603 NP0 50V 22P PM5 R
2418	223886715229	CER1 0603 NP0 50V 22P PM5 R
2421	223878615649	CER2 0603 X7R 16V 100N PM10 R
2425	223878615649	CER2 0603 X7R 16V 100N PM10 R
2426	222224119876	CER2 1206 Y5V 10V 10U P8020 R
2431	222224119876	CER2 1206 Y5V 10V 10U P8020 R
2432	223878615649	CER2 0603 X7R 16V 100N PM10 R
2433	223878615649	CER2 0603 X7R 16V 100N PM10 R
2434	223878615649	CER2 0603 X7R 16V 100N PM10 R
2435	223878615649	CER2 0603 X7R 16V 100N PM10 R
2436	223878615649	CER2 0603 X7R 16V 100N PM10 R
2437	223878615649	CER2 0603 X7R 16V 100N PM10 R
2438	223878615649	CER2 0603 X7R 16V 100N PM10 R
2441	222224119876	CER2 1206 Y5V 10V 10U P8020 R
2442	223878615649	CER2 0603 X7R 16V 100N PM10 R
2443	223878615649	CER2 0603 X7R 16V 100N PM10 R
2444	223878615649	CER2 0603 X7R 16V 100N PM10 R
2445	223878615649	CER2 0603 X7R 16V 100N PM10 R
2446	223878615649	CER2 0603 X7R 16V 100N PM10 R
2447	223878615649	CER2 0603 X7R 16V 100N PM10 R
2452	223878615649	CER2 0603 X7R 16V 100N PM10 R
2453	223878615649	CER2 0603 X7R 16V 100N PM10 R
2454	223878615649	CER2 0603 X7R 16V 100N PM10 R
2455	223878615649	CER2 0603 X7R 16V 100N PM10 R
2456	222224119876	CER2 1206 Y5V 10V 10U P8020 R
2457	223878615649	CER2 0603 X7R 16V 100N PM10 R
2458	223878615649	CER2 0603 X7R 16V 100N PM10 R
2655	223878615649	CER2 0603 X7R 16V 100N PM10 R
2658	223878616641	CER2 0603 X7R 16V 22N PM10 R
2461	222224119876	CER2 1206 Y5V 10V 10U P8020 R
2462	223878615649	CER2 0603 X7R 16V 100N PM10 R
2463	223878619854	CER2 0603 Y5V 16V 220N P8020 R
2464	223878619854	CER2 0603 Y5V 16V 220N P8020 R
2465	223878619854	CER2 0603 Y5V 16V 220N P8020 R
2466	223878619854	CER2 0603 Y5V 16V 220N P8020 R
2501	223878615649	CER2 0603 X7R 16V 100N PM10 R
2502	223878615649	CER2 0603 X7R 16V 100N PM10 R
2504	223878615649	CER2 0603 X7R 16V 100N PM10 R
2505	223878615649	CER2 0603 X7R 16V 100N PM10 R
2506	223878615649	CER2 0603 X7R 16V 100N PM10 R
2507	223878615649	CER2 0603 X7R 16V 100N PM10 R
2555	223891619849	CER2 0603 Y5V 25V 100N P8020 R
2601	223886715229	CER1 0603 NP0 50V 22P PM5 R
2603	223886715101	CER1 0603 NP0 50V 100P PM5 R
2604	223886715479	CER1 0603 NP0 50V 47P PM5 R
2606	223891619849	CER2 0603 Y5V 25V 100N P8020 R
2607	223891619849	CER2 0603 Y5V 25V 100N P8020 R
2621	222224119876	CER2 1206 Y5V 10V 10U P8020 R
2622	223891619849	CER2 0603 Y5V 25V 100N P8020 R
2623	223891619849	CER2 0603 Y5V 25V 100N P8020 R
2624	223891619849	CER2 0603 Y5V 25V 100N P8020 R
2625	223891619849	CER2 0603 Y5V 25V 100N P8020 R
2626	223891619849	CER2 0603 Y5V 25V 100N P8020 R
2627	223891619849	CER2 0603 Y5V 25V 100N P8020 R
2628	223891619849	CER2 0603 Y5V 25V 100N P8020 R
2631	223891619849	CER2 0603 Y5V 25V 100N P8020 R
2632	223891619849	CER2 0603 Y5V 25V 100N P8020 R
2633	223891619849	CER2 0603 Y5V 25V 100N P8020 R
2003	202203100173	ELCAP EB 25V S 470U PM20 B
2004	223891619849	CER2 0603 Y5V 25V 100N P8020 R
2005	202203100173	ELCAP EB 25V S 470U PM20 B
2006	223858015641	CER2 0805 X7R 50V 22N PM10 R
2007	223891619849	CER2 0603 Y5V 25V 100N P8020 R
2008	223858015641	CER2 0805 X7R 50V 22N PM10 R
2011	223858015614	CER2 0805 X7R 50V 220P PM10 R
2012	202203100173	ELCAP EB 25V S 470U PM20 B
2013	223891619849	CER2 0603 Y5V 25V 100N P8020 R
2014	223858015614	CER2 0805 X7R 50V 220P PM10 R
2015	223858619805	CER2 0603 Y5V 50V 10N P8020 R
2016	223858619812	CER2 0603 Y5V 50V 100N P8020 R
2019	202203100367	ELCAP SK 16V S 47U PM20 B
2021	223891619849	CER2 0603 Y5V 25V 100N P8020 R
2022	223891619849	CER2 0603 Y5V 25V 100N P8020 R
2023	223891619849	CER2 0603 Y5V 25V 100N P8020 R
2024	202203100367	ELCAP SK 16V S 47U PM20 B
2025	223858619805	CER2 0603 Y5V 50V 10N P8020 R
2101	223824619863	CER2 0603 Y5V 10V 1U P8020 R
2102	223824619863	CER2 0603 Y5V 10V 1U P8020 R
2103	223824619863	CER2 0603 Y5V 10V 1U P8020 R
2104	223824619863	CER2 0603 Y5V 10V 1U P8020 R
2105	223886715159	CER1 0603 NP0 50V 15P PM5 R
2106	223886715479	CER1 0603 NP0 50V 47P PM5 R
2107	223878615649	CER2 0603 X7R 16V 100N PM10 R
2108	222224119876	CER2 1206 Y5V 10V 10U P8020 R
2109	223824615654	CER2 0603 X7R 10V 220N PM10 R
2111	223878615649	CER2 0603 X7R 16V 100N PM10 R
2112	222224119876	CER2 1206 Y5V 10V 10U P8020 R
2114	222224119876	CER2 1206 Y5V 10V 10U P8020 R
2115	223858615632	CER2 0603 X7R 50V 4N7 PM10 R
2116	223858615632	CER2 0603 X7R 50V 4N7 PM10 R
2123	222224119876	CER2 1206 Y5V 10V 10U P8020 R
2124	222224119876	CER2 1206 Y5V 10V 10U P8020 R
2136	223824619863	CER2 0603 Y5V 10V 1U P8020 R
2137	223824619863	CER2 0603 Y5V 10V 1U P8020 R
2138	223824619863	CER2 0603 Y5V 10V 1U P8020 R
2139	223824619863	CER2 0603 Y5V 10V 1U P8020 R
2153	223891019854	CER2 0805 Y5V 25V 220N P8020 R
2158	223891019854	CER2 0805 Y5V 25V 220N P8020 R
2161	223858615623	CER2 0603 X7R 50V 1N PM10 R
2162	223858615623	CER2 0603 X7R 50V 1N PM10 R
2163	223858119716	CER2 1206 Y5V 50V 470N PM20 R
2164	223824619863	CER2 0603 Y5V 10V 1U P8020 R
2165	223824619863	CER2 0603 Y5V 10V 1U P8020 R
2166	223824619863	CER2 0603 Y5V 10V 1U P8020 R
2167	223858119716	CER2 1206 Y5V 50V 470N PM20 R
2168	223891019854	CER2 0805 Y5V 25V 220N P8020 R
2175	223891019854	CER2 0805 Y5V 25V 220N P8020 R
2177	223891619849	CER2 0603 Y5V 25V 100N P8020 R
2178	202203100366	ELCAP SK 50V S 10U PM20 B
2179	223891619849	CER2 0603 Y5V 25V 100N P8020 R
2183	202203100366	ELCAP SK 50V S 10U PM20 B
2184	202203100366	ELCAP SK 50V S 10U PM20 B
2185	202203100366	ELCAP SK 50V S 10U PM20 B
2192	202203100173	ELCAP EB 25V S 470U PM20 B
2193	202203100173	ELCAP EB 25V S 470U PM20 B
2195	223891619849	CER2 0603 Y5V 25V 100N P8020 R
2202	223886715109	CER1 0603 NP0 50V 10P PM5 R
2203	223886715339	CER1 0603 NP0 50V 33P PM5 R
2204	223886715101	CER1 0603 NP0 50V 100P PM5 R
2205	223886715568	CER1 0603 NP0 50V 5P6 PM0P5 R
2206	223886715568	CER1 0603 NP0 50V 5P6 PM0P5 R

Spare Parts List

Go to cover page

2207	223886715568	CER1 0603 NP0 50V 5P6 PM0P5 R
2269	223886715331	CER1 0603 NP0 50V 330P PM5 R
2272	223886715331	CER1 0603 NP0 50V 330P PM5 R
2301	202203100367	ELCAP SK 16V S 47U PM20 B
2305	223858615623	CER2 0603 X7R 50V 1N PM10 R
2307	222224119876	CER2 1206 Y5V 10V 10U P8020 R
2308	223824619863	CER2 0603 Y5V 10V 1U P8020 R
2312	223858615636	CER2 0603 X7R 50V 10N PM10 R
2313	223858615636	CER2 0603 X7R 50V 10N PM10 R
2314	223858615636	CER2 0603 X7R 50V 10N PM10 R
2401	223878615649	CER2 0603 X7R 16V 100N PM10 R
2402	223878615649	CER2 0603 X7R 16V 100N PM10 R
2403	223878615645	CER2 0603 X7R 16V 47N PM10 R
2404	223878615645	CER2 0603 X7R 16V 47N PM10 R
2405	223858615623	CER2 0603 X7R 50V 1N PM10 R
2406	223878615645	CER2 0603 X7R 16V 47N PM10 R
2407	223878615645	CER2 0603 X7R 16V 47N PM10 R
2408	223878615645	CER2 0603 X7R 16V 47N PM10 R
2409	223878615645	CER2 0603 X7R 16V 47N PM10 R
2411	223878615645	CER2 0603 X7R 16V 47N PM10 R
2412	223858615623	CER2 0603 X7R 50V 1N PM10 R
2413	223878615645	CER2 0603 X7R 16V 47N PM10 R
2414	223878615645	CER2 0603 X7R 16V 47N PM10 R
2419	223886715568	CER1 0603 NP0 50V 5P6 PM0P5 R
2422	202203100367	ELCAP SK 16V S 47U PM20 B
2423	223878615649	CER2 0603 X7R 16V 100N PM10 R
2424	202203100367	ELCAP SK 16V S 47U PM20 B
2427	202203100367	ELCAP SK 16V S 47U PM20 B
2451	222224119876	CER2 1206 Y5V 10V 10U P8020 R
2503	222224119876	CER2 1206 Y5V 10V 10U P8020 R
2551	202203100365	ELCAP SK 50V S 1U PM20 B
2605	202203100074	ELCAP KM 16V S 1000U PM20 B
2634	223886715279	CER1 0603 NP0 50V 27P PM5 R
2635	223886715279	CER1 0603 NP0 50V 27P PM5 R
2636	223878615649	CER2 0603 X7R 16V 100N PM10 R
2637	223878616641	CER2 0603 X7R 16V 22N PM10 R
2638	223878616641	CER2 0603 X7R 16V 22N PM10 R
2639	223878616641	CER2 0603 X7R 16V 22N PM10 R
2641	223878616641	CER2 0603 X7R 16V 22N PM10 R
2642	223878616641	CER2 0603 X7R 16V 22N PM10 R
2644	223878616641	CER2 0603 X7R 16V 22N PM10 R
2646	223878616641	CER2 0603 X7R 16V 22N PM10 R
2647	223878616641	CER2 0603 X7R 16V 22N PM10 R
2649	223878616641	CER2 0603 X7R 16V 22N PM10 R
2651	223878616641	CER2 0603 X7R 16V 22N PM10 R
2652	223878616641	CER2 0603 X7R 16V 22N PM10 R
2653	223878616641	CER2 0603 X7R 16V 22N PM10 R
2654	223878616641	CER2 0603 X7R 16V 22N PM10 R
2656	222224119876	CER2 1206 Y5V 10V 10U P8020 R
2657	202203100367	ELCAP SK 16V S 47U PM20 B
3001	232270260562	RST SM 0603 RC21 5K6 PM5 R
3002	232270260101	RST SM 0603 RC21 100R PM5 R
3003	212211805669	RST SM 0603 RC0603 10K PM5 R
3004	232270260223	RST SM 0603 RC21 22K PM5 R
3005	232270260562	RST SM 0603 RC21 5K6 PM5 R
3006	232270260101	RST SM 0603 RC21 100R PM5 R
3007	232270260472	RST SM 0603 RC21 4K7 PM5 R
3008	212211805669	RST SM 0603 RC0603 10K PM5 R
3009	232270260362	RST SM 0603 RC21 3K6 PM5 R
3011	232270260102	RST SM 0603 RC21 1K PM5 R
3012	232270260102	RST SM 0603 RC21 1K PM5 R
3013	232270260101	RST SM 0603 RC21 100R PM5 R
3014	232270260472	RST SM 0603 RC21 4K7 PM5 R
3015	212211805669	RST SM 0603 RC0603 10K PM5 R
3016	232270260332	RST SM 0603 RC21 3K3 PM5 R
3017	232270260223	RST SM 0603 RC21 22K PM5 R
3018	232270260562	RST SM 0603 RC21 5K6 PM5 R
3019	232270260223	RST SM 0603 RC21 22K PM5 R
3021	232270260223	RST SM 0603 RC21 22K PM5 R
3022	232270260223	RST SM 0603 RC21 22K PM5 R
3023	232270260102	RST SM 0603 RC21 1K PM5 R
3027	232270260562	RST SM 0603 RC21 5K6 PM5 R
3024	232270260223	RST SM 0603 RC21 22K PM5 R
3031	232270260223	RST SM 0603 RC21 22K PM5 R
3032	232270260223	RST SM 0603 RC21 22K PM5 R
3034	232270260223	RST SM 0603 RC21 22K PM5 R
3101	232270260101	RST SM 0603 RC21 100R PM5 R
3104	232270260273	RST SM 0603 RC21 27K PM5 R
3105	232270260101	RST SM 0603 RC21 100R PM5 R
3151	232270260104	RST SM 0603 RC21 100K PM5 R
3152	212211805672	RST SM 0603 RC0603 15K PM5 R
3153	232270260101	RST SM 0603 RC21 100R PM5 R
3154	232270260101	RST SM 0603 RC21 100R PM5 R
3155	232270260104	RST SM 0603 RC21 100K PM5 R
3156	212211805672	RST SM 0603 RC0603 15K PM5 R
3157	212211805944	RST SM 0603 RC0603 120K PM5 R
3158	212211805639	RST SM 0603 RC0603 47R PM5 R
3161	232270260471	RST SM 0603 RC21 470R PM5 R
3162	232270260471	RST SM 0603 RC21 470R PM5 R
3201	232270260101	RST SM 0603 RC21 100R PM5 R
3202	232270260472	RST SM 0603 RC21 4K7 PM5 R
3203	232270260101	RST SM 0603 RC21 100R PM5 R
3204	232270260472	RST SM 0603 RC21 4K7 PM5 R
3205	232270260101	RST SM 0603 RC21 100R PM5 R
3206	232270260472	RST SM 0603 RC21 4K7 PM5 R
3207	232270260472	RST SM 0603 RC21 4K7 PM5 R
3208	232270260101	RST SM 0603 RC21 100R PM5 R
3211	232270260689	RST SM 0603 RC21 68R PM5 R
3213	212211805642	RST SM 0603 RC0603 75R PM5 R
3214	232270260689	RST SM 0603 RC21 68R PM5 R
3215	232270260689	RST SM 0603 RC21 68R PM5 R
3217	212211805642	RST SM 0603 RC0603 75R PM5 R
3218	232270260689	RST SM 0603 RC21 68R PM5 R
3221	232270260689	RST SM 0603 RC21 68R PM5 R
3223	212211805642	RST SM 0603 RC0603 75R PM5 R
3224	232270260689	RST SM 0603 RC21 68R PM5 R
3225	232270260101	RST SM 0603 RC21 100R PM5 R
3231	232270260102	RST SM 0603 RC21 1K PM5 R
3232	232270260273	RST SM 0603 RC21 27K PM5 R
3233	232270260102	RST SM 0603 RC21 1K PM5 R
3234	232270260273	RST SM 0603 RC21 27K PM5 R
3235	232270260472	RST SM 0603 RC21 4K7 PM5 R
3251	232270260279	RST SM 0603 RC21 27R PM5 R
3252	212211805639	RST SM 0603 RC0603 47R PM5 R
3253	232270461002	RST SM 0603 RC22H 1K PM1 R
3254	232270260273	RST SM 0603 RC21 27K PM5 R
3255	232270461002	RST SM 0603 RC22H 1K PM1 R
3256	232270260273	RST SM 0603 RC21 27K PM5 R
3257	232270260279	RST SM 0603 RC21 27R PM5 R
3258	212211805639	RST SM 0603 RC0603 47R PM5 R
3261	232270260279	RST SM 0603 RC21 27R PM5 R
3262	212211805639	RST SM 0603 RC0603 47R PM5 R
3264	212211805635	RST SM 0603 RC0603 10R PM5 R
3265	212211805635	RST SM 0603 RC0603 10R PM5 R
3266	212211805635	RST SM 0603 RC0603 10R PM5 R
3281	232270260102	RST SM 0603 RC21 1K PM5 R
3282	232270260273	RST SM 0603 RC21 27K PM5 R
3283	232270260102	RST SM 0603 RC21 1K PM5 R
3289	232270260273	RST SM 0603 RC21 27K PM5 R
3301	232270461005	RST SM 0603 RC22H 1M PM1 R
3302	232270260332	RST SM 0603 RC21 3K3 PM5 R
3303	232270260332	RST SM 0603 RC21 3K3 PM5 R
3304	232270260332	RST SM 0603 RC21 3K3 PM5 R
3305	232270260332	RST SM 0603 RC21 3K3 PM5 R
3306	232270260332	RST SM 0603 RC21 3K3 PM5 R
3307	232270260332	RST SM 0603 RC21 3K3 PM5 R
3308	232270260332	RST SM 0603 RC21 3K3 PM5 R
3309	232270260332	RST SM 0603 RC21 3K3 PM5 R
3311	232270260222	RST SM 0603 RC21 2K2 PM5 R
3312	232270260472	RST SM 0603 RC21 4K7 PM5 R
3313	232270260472	RST SM 0603 RC21 4K7 PM5 R
3314	232270260223	RST SM 0603 RC21 22K PM5 R
3315	232270260332	RST SM 0603 RC21 3K3 PM5 R
3316	232270260332	RST SM 0603 RC21 3K3 PM5 R
3317	232270260332	RST SM 0603 RC21 3K3 PM5 R
3327	232270461002	RST SM 0603 RC22H 1K PM1 R
3329	232270260101	RST SM 0603 RC21 100R PM5 R
3331	232270260101	RST SM 0603 RC21 100R PM5 R
3402	232270463901	RST SM 0603 RC22H 390R PM1 R
3403	232270260471	RST SM 0603 RC21 470R PM5 R
3404	232270260471	RST SM 0603 RC21 470R PM5 R
3405	232270260101	RST SM 0603 RC21 100R PM5 R
3406	235003510101	RST NETW SM ARV24 4X100R PM5 R
3407	235003510101	RST NETW SM ARV24 4X100R PM5 R
3409	232270461002	RST SM 0603 RC22H 1K PM1 R
3411	232270260101	RST SM 0603 RC21 100R PM5 R
3412	235003510229	RST NETW SM ARV24 4X 22R PM5 R
3413	235003510229	RST NETW SM ARV24 4X 22R PM5 R
3414	235003510229	RST NETW SM ARV24 4X 22R PM5 R
3415	235003510229	RST NETW SM ARV24 4X 22R PM5 R
3416	235003510229	RST NETW SM ARV24 4X 22R PM5 R
3417	235003510229	RST NETW SM ARV24 4X 22R PM5 R
3418	235003510229	RST NETW SM ARV24 4X 22R PM5 R
3419	232270461005	RST SM 0603 RC22H 1M PM1 R
3421	212211805639	RST SM 0603 RC0603 47R PM5 R
3422	212211805635	RST SM 0603 RC0603 10R PM5 R
3424	232270260689	RST SM 0603 RC21 68R PM5 R
3425	232270260689	RST SM 0603 RC21 68R PM5 R
3426	232270260689	RST SM 0603 RC21 68R PM5 R
3501	235003510229	RST NETW SM ARV24 4X 22R PM5 R
3502	232270260472	RST SM 0603 RC21 4K7 PM5 R
3503	232270260472	RST SM 0603 RC21 4K7 PM5 R
3504	235003510229	RST NETW SM ARV24 4X 22R PM5 R
3505	235003510229	RST NETW SM ARV24 4X 22R PM5 R
3506	235003510229	RST NETW SM ARV24 4X 22R PM5 R
3609	212211805639	RST SM 0603 RC0603 47R PM5 R
3611	232270260279	RST SM 0603 RC21 27R PM5 R
3624	232270260472	RST SM 0603 RC21 4K7 PM5 R
3625	232270260101	RST SM 0603 RC21 100R PM5 R
3627	235003510101	RST NETW SM ARV24 4X100R PM5 R
3628	235003510101	RST NETW SM ARV24 4X100R PM5 R
3632	212211805639	RST SM 0603 RC0603 47R PM5 R
3633	212211805639	RST SM 0603 RC0603 47R PM5 R
3634	212211805639	RST SM 0603 RC0603 47R PM5 R
3635	212211805639	RST SM 0603 RC0603 47R PM5 R
5001	313818875691	COI CHOKE 35UH 82M OHM DR10X8
5002	313818875691	COI CHOKE 35UH 82M OHM DR10X8
5003	243853598058	IND FXD BEAD EMI 100MHZ 80R A
5004	242254944197	IND FXD 0805 EMI 100MHZ 220R R
5005	242254944197	IND FXD 0805 EMI 100MHZ 220R R
5101	242253595853	IND FXD SM 0603 0U10 PM10 R
5102	242253595853	IND FXD SM 0603 0U10 PM10 R
5151	242253600782	IND FXD TSL0808 S 33U PM10 B
5152	242254900126	IND FXD 0805 EMI 100MHZ 120R R
5153	242254900126	IND FXD 0805 EMI 100MHZ 120R R
5154	242253600782	IND FXD TSL0808 S 33U PM10 B
5155	242253600782	IND FXD TSL0808 S 33U PM10 B
5156	242253600782	IND FXD TSL0808 S 33U PM10 B
5157	242254900126	IND FXD 0805 EMI 100MHZ 120R R
5158	242254900126	IND FXD 0805 EMI 100MHZ 120R R
5161	242254944194	IND FXD 0805 EMI 100MHZ 200R R
5162	242253600428	IND FXD TSL0808 S 10U PM10 B
5201	242254942893	IND FXD 0603 EMI 100MHZ 120R R
5202	242254942893	IND FXD 0603 EMI 100MHZ 120R R
5203	242254942893	IND FXD 0603 EMI 100MHZ 120R R
5204	242254944197	IND FXD 0805 EMI 100MHZ 220R R
5253	242253595853	IND FXD SM 0603 0U10 PM10 R
5254	242253595853	IND FXD SM 0603 0U10 PM10 R
5301	242254944197	IND FXD 0805 EMI 100MHZ 220R R
5401	242254944197	IND FXD 0805 EMI 100MHZ 220R R
5402	242254944197	IND FXD 0805 EMI 100MHZ 220R R
5403	242254944197	IND FXD 0805 EMI 100MHZ 220R R
5404	242254944197	IND FXD 0805 EMI 100MHZ 220R R
5405	242254944197	IND FXD 0805 EMI 100MHZ 220R R
5406	242254944197	IND FXD 0805 EMI 100MHZ 220R R
5407	242254944197	IND FXD 0805 EMI 100MHZ 220R R
5408	242254944197	IND FXD 0805 EMI 100MHZ 220R R
5551	242254944197	IND FXD 0805 EMI 100MHZ 220R R
5601	242254944197	IND FXD 0805 EMI 100MHZ 220R R
5621	242254944197	IND FXD 0805 EMI 100MHZ 220R R
5622	242254944527	IND FXD 0603 EMI 100MHZ 600R R
5623	242254944527	IND FXD 0603 EMI 100MHZ 600R R
5624	242254944527	IND FXD 0603 EMI 100MHZ 600R R
5625	242254944527	IND FXD 0603 EMI 100MHZ 600R R
5626	242254944527	IND FXD 0603 EMI 100MHZ 600R R
6001	932221745685	DIO REC SM SSA34 (VISH) R
6002	932220347685	DIO REG SM BZX84-B16 (VISH) R
6003	932221745685	DIO REC SM SSA34 (VISH) R
6006	933913910115	DIO SIG SM BAS32L (PHSE) R
6101	933913910115	DIO SIG SM BAS32L (PHSE) R
6201	933913910115	DIO SIG SM BAS32L (PHSE) R
6202	933913910115	DIO SIG SM BAS32L (PHSE) R
7001	932219076668	IC SM L5972D (ST00) R
7002	932217438685	TRA SIG SM BC847C (KEC0) R
7003	932217438685	TRA SIG SM BC847C (KEC0) R
7004	932219076668	IC SM L5972D (ST00) R
7005	932217438685	TRA SIG SM BC847C (KEC0) R
7006	932216638668	FET POW SM SI5441DC-E3 (VISH)R
7009	932217438685	TRA SIG SM BC847C (KEC0) R
7011	932217438685	TRA SIG SM BC847C (KEC0) R
7012	932216638668	FET POW SM SI5441DC-E3 (VISH)R
7101	932219412671	IC SM MSP3445G-QI-B8V3(MIAS) Y
7102	933714830653	IC SM 74HC4052D (PHSE) R
7151	932222035668	IC SM TPA3005D2PHP (TI00) R
7201	935245720165	IC SM 74HCT1G14GW (PHSE) R

7202	932216972682	IC SM AT24C02N-10SC-2.7(ATME)L
7301	313815862181	CPU ASSY (LPL -F1 15")
7301	823827716771	NT68F632AL CPU
7302	932217438685	TRA SIG SM BC847C (KEC0) R
7303	932219183685	IC SM LM809M3-2.93 NOPB(NSC0)R
7304	932222076668	IC SM AME1117CCGTZ (ST00) R
7305	313815862211	EEPROM ASSY (LPL-F1 15")
7305	932218650682	IC AT24C16A-10PI-2.7 (ATME) L
7401	932222013671	IC SM MST51512L-LF (MSTA) Y
7402	932222075668	IC SM AME1117BCGTZ (ST00) R
7403	932222076668	IC SM AME1117CCGTZ (ST00) R
7404	932222076668	IC SM AME1117CCGTZ (ST00) R
7502	932216677682	IC SM M12L16161A-7T (ESMT) L
7501	932216677682	IC SM M12L16161A-7T (ESMT) L
7621	935276561518	IC SM SAA7119E/V2/G (PHSE) R
7622	932222077668	IC SM AME1117ECGTZ (ST00) R
7623	932222076668	IC SM AME1117CCGTZ (ST00) R
1052	313815860801	YPbPr-IN PCB ASSY
1931	823827716831	1 X 3 OIN JACK VERTICAL TYPE
8931	313819874521	CBLE -015 5/70/5-915 AWG28
5931	242253595588	IND FXD SM 0805 0U56 PM10 R
5932	242253595588	IND FXD SM 0805 0U56 PM10 R
5933	242253595588	IND FXD SM 0805 0U56 PM10 R
5934	242253595588	IND FXD SM 0805 0U56 PM10 R
5935	242253595588	IND FXD SM 0805 0U56 PM10 R
5936	242253595588	IND FXD SM 0805 0U56 PM10 R
2931	223886715689	CER1 0603 NP0 50V 68P PM5 R
2932	223886715121	CER1 0603 NP0 50V 120P PM5 R
2933	223886715689	CER1 0603 NP0 50V 68P PM5 R
2934	223886715689	CER1 0603 NP0 50V 68P PM5 R
2935	223886715121	CER1 0603 NP0 50V 120P PM5 R
2936	223886715689	CER1 0603 NP0 50V 68P PM5 R
2937	223886715689	CER1 0603 NP0 50V 68P PM5 R
2938	223886715121	CER1 0603 NP0 50V 120P PM5 R
2939	223886715689	CER1 0603 NP0 50V 68P PM5 R
3931	232270260339	RST SM 0603 RC21 33R PM5 R
3932	212211805964	RST SM 0603 RC0603 75R PM1 R
3933	232270260339	RST SM 0603 RC21 33R PM5 R
3934	212211805964	RST SM 0603 RC0603 75R PM1 R
3935	232270260339	RST SM 0603 RC21 33R PM5 R
3936	212211805964	RST SM 0603 RC0603 75R PM1 R
1053	313815860811	IR PCB ASSY
1902	243812800224	SWI PUSH 2P 0.2A 20V SFPC12 B
2901	223878615649	CER2 0603 X7R 16V 100N PM10 R
2902	222278019763	CER2 0805 Y5V 16V 1U PM20 R
2903	223858015636	CER2 0805 X7R 50V 10N PM10 R
3901	212211805669	RST SM 0603 RC0603 10K PM5 R
3902	232270260101	RST SM 0603 RC21 100R PM5 R
3904	212211805647	RST SM 0603 RC0603 220R PM5 R
3905	212211805647	RST SM 0603 RC0603 220R PM5 R
7901	932217439685	TRA SIG SM BC857C (KEC0) R
6901	313815862261	IR + HOLDER ASSY
6901	932220313667	IR RECEIVER TSOP34136SB1 L
6902	313815862171	LED + HOLDER ASSY
6902	932214603682	LED VS L-3WYGW (KIEL) B
1054	313815860881	KEY BOARD ASSY
1903	242212803035	SWI TACT SM 1P 1POS SKQGAB R
1904	242212803035	SWI TACT SM 1P 1POS SKQGAB R
1906	242212803035	SWI TACT SM 1P 1POS SKQGAB R
1907	242212803035	SWI TACT SM 1P 1POS SKQGAB R
1908	242212803035	SWI TACT SM 1P 1POS SKQGAB R
1921	823827716481	CON BM H2P M1.25
2904	223858615636	CER2 0603 X7R 50V 10N PM10 R
3906	232270260471	RST SM 0603 RC21 470R PM5 R
3907	232270260222	RST SM 0603 RC21 2K2 PM5 R
3909	232270260332	RST SM 0603 RC21 3K3 PM5 R
3910	232270260472	RST SM 0603 RC21 4K7 PM5 R
3911	232270260102	RST SM 0603 RC21 1K PM5 R

Diversity of 150F1(AUO Panel) compared with 150F1(LPL Panel)

1050	823827717471	TFT-LCD MOD T150XG01 V.0(AUO0)
1051	313815862131	SCALER PCB ASSY (NAFT)15"AUO
2026	223878615647	CER2 0603 X7R 16V 68N PM10 R
2163	223824619858	CER2 0603 Y5V 10V 470N P8020 R
2164	223824619858	CER2 0603 Y5V 10V 470N P8020 R
2165	223824619858	CER2 0603 Y5V 10V 470N P8020 R
2166	223824619858	CER2 0603 Y5V 10V 470N P8020 R
2167	223824619858	CER2 0603 Y5V 10V 470N P8020 R
2315	223858615636	CER2 0603 X7R 50V 10N PM10 R
3016	212211805976	RST SM 0603 RC0603 3K PM5 R
3019	232270260473	RST SM 0603 RC21 47K PM5 R
3022	212211805669	RST SM 0603 RC0603 10K PM5 R
3025	212211805651	RST SM 0603 RC0603 390R PM5 R
3026	232270260241	RST SM 0603 RC21 240R PM5 R
3032	212211805669	RST SM 0603 RC0603 10K PM5 R
3606	231291511808	RST MFLM MBB0207 A 1R8 PM1 A
5302	242254944197	IND FXD 0805 EMI 100MHZ 220R R
5303	242254944197	IND FXD 0805 EMI 100MHZ 220R R
7007	932220212685	IC SM LM217D2 (ST00) R
7301	313815862191	CPU ASSY (AUO F1 15")
0291	313815566091	LABEL-EEPROM-AUO
0615	313811708191	HEX CODE OF F/W (NO MATL REQ)
7305	313815862221	EEPROM ASSY (AUO-F1 15")
0292	313815566091	LABEL-EEPROM-AUO
7621	935276561557	IC SM SAA7119E/V2/G (PHSE) Y
1931	242202605741	SOC CINCH V 3P F 1L3 GNBURD Y
2933	223886715229	CER1 0603 NP0 50V 22P PM5 R
2936	223886715229	CER1 0603 NP0 50V 22P PM5 R
2939	223886715229	CER1 0603 NP0 50V 22P PM5 R
1180	313815862291	MAIN FRAME+ WIRE ASSY
8161	313819874542	CBLE -266 6/290/6-266 AWG28
1183	823827717271	DC-AC INVERTER(LIVP-2001 A)
1186	823827717661	LSP BOX 8R 3W-L(P150BL)

Different parts list

Go to cover page

Diversity of 20MF605T/17 compared with 15MF605T/17(LPL)		
Item	12NC	Description
	863900016038	20MF605T/17
1050	823827717611	TFT-LCD MOD A201SN02 V2(AUO0)
1051	313815862141	SCALER PCB ASSY (NAFT)20"AUO
1101	242254301372	RES XTL SM 18M432 16P HC49/S R
1301	242254301501	RES XTL SM 11M059 20P HC49/S R
2552	223886715108	CER1 0603 NP0 50V 1P PM0P25 R
2553	223886715109	CER1 0603 NP0 50V 10P PM5 R
2554	223858615623	CER2 0603 X7R 50V 1N PM10 R
2556	223891619849	CER2 0603 Y5V 25V 100N P8020 R
3551	235003510479	RST NETW SM ARV24 4X 47R PM5 R
3552	235003510479	RST NETW SM ARV24 4X 47R PM5 R
3553	235003510479	RST NETW SM ARV24 4X 47R PM5 R
3554	235003510479	RST NETW SM ARV24 4X 47R PM5 R
3555	235003510479	RST NETW SM ARV24 4X 47R PM5 R
3556	235003510479	RST NETW SM ARV24 4X 47R PM5 R
3557	212211805639	RST SM 0603 RC0603 47R PM5 R
3558	212211805635	RST SM 0603 RC0603 10R PM5 R
3561	212211805639	RST SM 0603 RC0603 47R PM5 R
3562	212211805639	RST SM 0603 RC0603 47R PM5 R
4602	212211805631	RST SM 0603 JUMP. MAX 0R05 R
4623	212211805631	RST SM 0603 JUMP. MAX 0R05 R
7305	313815862231	EEPROM ASSY (AUO-F1 20")
0292	313815565901	LABEL-EEPROM-AUO
7401	932222015671	IC SM MST51502L-LF (MSTA) Y
7621	935276561557	IC SM SAA7119E/V2/G (PHSE) Y
8175	313819874691	CBLE-268 8/180/8-268 AWG28
8176	313819874681	CBLE-262 2/180/2-042 AWG28
7002	933967270685	TRA SIG SM BC847CLG (ONSE) R
7003	933967270685	TRA SIG SM BC847CLG (ONSE) R
7005	933967270685	TRA SIG SM BC847CLG (ONSE) R
7009	933967270685	TRA SIG SM BC847CLG (ONSE) R
7011	933967270685	TRA SIG SM BC847CLG (ONSE) R
7202	932214526668	IC SM M24C02-WMN6 (ST00) R
7301	313815862201	CPU ASSY (F1-20")
0291	313815565901	LABEL-EEPROM-AUO
0615	313811708241	HEX CODE OF F/W (NO MATL REQ)
7302	933967270685	TRA SIG SM BC847CLG (ONSE) R
7303	823827716381	REGULATOR
1553	242202518229	CON H 50P F 0.50 SM FPC 0.3 R
5931	242253595313	IND FXD SM 0805 0U56 PM10 R
5932	242253595313	IND FXD SM 0805 0U56 PM10 R
5933	242253595313	IND FXD SM 0805 0U56 PM10 R
5934	242253595313	IND FXD SM 0805 0U56 PM10 R
5935	242253595313	IND FXD SM 0805 0U56 PM10 R
5936	242253595313	IND FXD SM 0805 0U56 PM10 R
1180	313815862161	MAIN FRAME+WIRE ASSY(AUO)
8161	313819874661	CBLE-016 6/360/6-016 AWG28
1183	823827717601	DC-AC INVERTER (T50I061.00)
1185	823827717451	LSP BOX 8R 3W-R(P150CR)
1186	823827717651	LSP BOX 8R 3W-L(P150CL)
8174	313819874641	FFC 50/270/50 PITCH 0.5mm
0011	313815758321	BEZEL ASSY
0030	313815414951	BEZEL
0040	313815414961	BACK COVER
0041	313815414971	DOOR-CABLE
0450	313815639381	CARTON
0451	313815639371	CUSHION-L
0452	313815639361	CUSHION-R
0453	313815640141	P.E. FOAM BAG(750 X 800)

0. Warning

All ICs and many other semi-conductors are susceptible to electrostatic discharges (ESD). Careless handling during repair can reduce life drastically. When repairing, make sure that you are connected with the same potential as the mass of the unit via a wrist wrap with resistance. Keep components and tools also at the same potential !

1. Servicing of SMDs (Surface Mounted Devices)

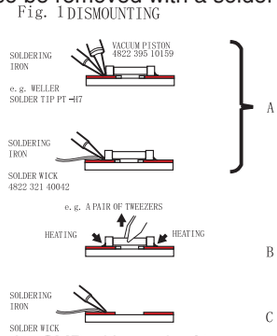
1.1 General cautions on handling and storage

- Oxidation on the terminals of SMDs results in poor soldering. Do not handle SMDs with bare hands.
- Avoid using storage places that are sensitive to oxidation such as places with sulphur or chlorine gas, direct sunlight, high temperatures or a high degree of humidity. The capacitance or resistance value of the SMDs may be affected by this.
- Rough handling of circuit boards containing SMDs may cause damage to the components as well as the circuit boards. Circuit boards containing SMDs should never be bent or flexed. Different circuit board materials expand and contract at different rates when heated or cooled and the components and/or solder connections may be damaged due to the stress. Never rub or scrape chip components as this may cause the value of the component to change. Similarly, do not slide the circuit board across any surface.

1.2 Removal of SMDs

- Heat the solder (for 2-3 seconds) at each terminal of the chip. By means of litz wire and a slight horizontal force, small components can be removed with the soldering iron. They can also be removed with a solder sucker (see Fig. 1A)

Fig. 1 DISMOUNTING



While holding the SMD with a pair of tweezers, take it off gently using the soldering iron's heat applied to each terminal (see Fig. 1 B).

- Remove the excess solder on the solder lands by means of litz wire or a solder sucker (see Fig. 1C).

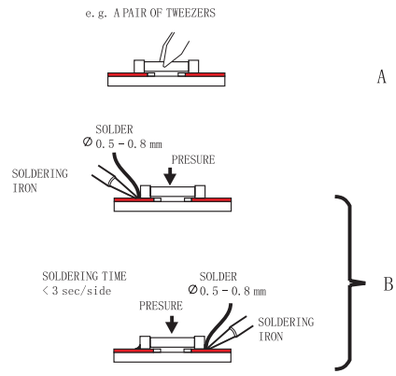
1.3 Caution on removal

- When handling the soldering.iron. use suitable pressure and be careful.
- When removing the chip, do not use undue force with the pair of tweezers.
- The soldering iron to be used (approx. 30 W) should preferably be equipped with a thermal control (soldering temperature: 225 to 250 C).
- The chip, once removed, must never be reused.

1.4 Attachment of SMDs

- Locate the SMD on the solder lands by means of tweezers and solder the component on one side. Ensure that the component is positioned correctly on the solder lands (see Fig.2A).
- Next complete the soldering of the terminals of the component (see Fiq. 2B).

Fig. 2 MOUNTING



2. Caution when attaching SMDs

- When soldering the SMD terminals, do not touch them directly with the soldering iron. The soldering should be done as quickly as possible, care must be taken to avoid damage to the terminals of the SMDs themselves.
- Keep the SMD's body in contact with the printed board when soldering.
- The soldering iron to be used (approx. 30 W) should preferably be equipped with a thermal control (soldering temperature: 225 to 250 C).
- Soldering should not be done outside the solder land.
- Soldering flux (of rosin) may be used, but should not be acidic.
- After soldering, let the SMD cool down gradually at room temperature.
- The quantity of solder must be proportional to the size of the solder land. If the quantity is too great, the SMD might crack or the solder lands might be torn loose from the printed board (see Fig. 3).

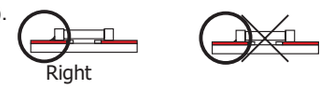
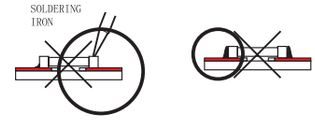


Fig.3 Examples



Repair Tips

Go to cover page

3. Lead-free product identification
You can identify lead-free product by Philips-lead-free logo on PCB.

4. Lead-free product repair instruction
4.1 Use only lead-free Solder Alloy 0622 149 00106(1.2mm SAC305) or 0622 149 00108(1.0mm SAC305).
Remark: For lead free soldering material, please visit www.alphametals.com website for details. This is recommended by Philips.

4.2 Use only adequate solder tools applicable for lead-free soldering-tin. The solder tool must be able to reach at least a solder-temperature of 400℃, to stabilize the adjusted temperature at the solder-tip and to exchange solder-tips for different applications.
Small Passives/Actives to be removed with thermal tweezers
Automated system for IC and BGA repair (Microscope, Camera, Beam split optics, Computer, Programmer, Heat controllers, Vacuum system, Laser pointer)
Solder Hand-Tool (Adjustable in temperature height, Temperature shall be held constant, Flexible tips)

4.3 Adjust your solder tool so that a temperature around 360℃-380℃ is reached and stabilized at the solder joint. Heating-time of the solder-joint should not exceed ~ 4 sec. Avoid temperatures above 400℃ otherwise wear-out of tips will rise drastically and flux-fluid will be destroyed.

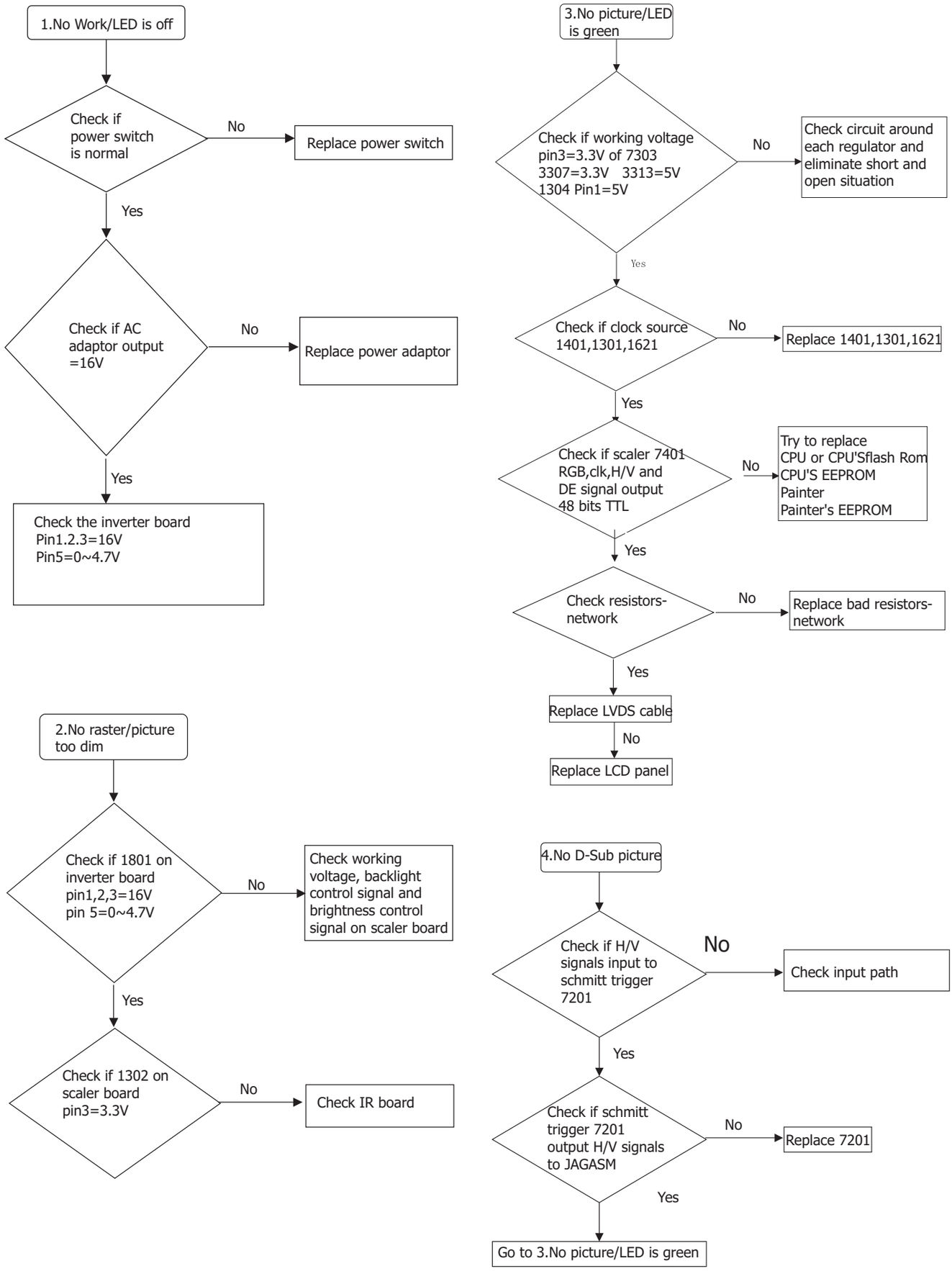
Corrosion of Tool-Spikes can be avoided when using SAC305 and a temperature of less than 400℃.

4.4 Mix of lead-free solder-tin/parts with leaded soldering-tin/parts is possible but not recommended. If not to avoid clean carefully the solder-joint from old tin and re-solder with new tin.

4.5 Use only original spare-parts listed in the Service-Manuals. Standard-material (consumables) can also be purchased at external companies.
4.6 Special information for lead-free BGA-ICs: this ICs will be delivered in so-called dry-packaging to protect the IC against moisture and with lead-free logo on it. This packaging may only be opened shortly before it is used (soldered). Otherwise the body of the IC gets "wet" inside and during the heating time the structure of the IC will be destroyed due to high (steam-)pressure. If the packaging was opened before usage the IC has to be heated up for some hours (around 90℃) for drying (Take attention for ESD-protection!)

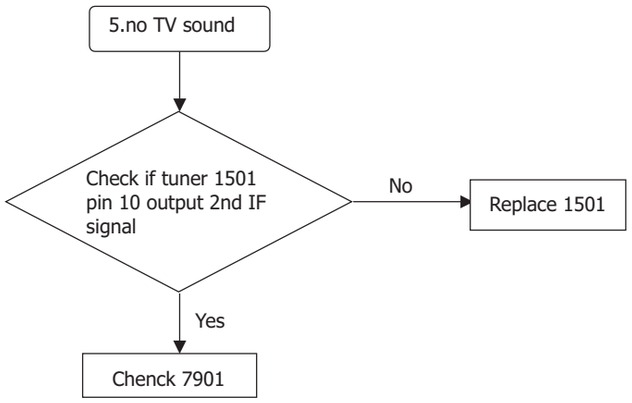
5. Rework on BGA (Ball Grid Array) ICs
General
Although (LF)BGA assembly yields are very high, there may still be a requirement for component rework. By rework, we mean the process of removing the component from the PWB and replacing it with a new component. If an (LF)BGA is removed from a PWB, the solder balls of the component are deformed drastically so the removed (LF)BGA has to be discarded.
Device Removal
As is the case with any component that, it is essential when removing an (LF)BGA, the board, tracks, solder lands, or surrounding components are not damaged. To remove an (LF)BGA, the board must be uniformly heated to a temperature close to the reflow soldering temperature. A uniform temperature reduces the chance of warping the PWB.
To do this, we recommend that the board is heated until it is certain that all the joints are molten. Then carefully pull the component off the board with a vacuum nozzle. For the appropriate temperature profiles, see the IC data sheet.
Area Preparation
When the component has been removed, the vacant IC area must be cleaned before replacing the (LF)BGA.
Removing an IC often leaves varying amounts of solder on the mounting lands. This excessive solder can be removed with either a solder sucker or solder wick. The remaining flux can be removed with a brush and cleaning agent. After the board is properly cleaned and inspected, apply flux on the solder lands and on the connection balls of the(LF)BGA
Note: Do not apply solder paste, as this has shown to result in problems during re-soldering.
Device Replacement
The last step in the repair process is to solder the new component on the board. Ideally, the (LF)BGA should be aligned under a microscope or magnifying glass. If this is not possible, try to align the (LF)BGA with any board markers. To reflow the solder, apply a temperature profile according to the IC data sheet. So as not to damage neighbouring components, it may be necessary to reduce some temperatures and times.
More Information
For more information on how to handle BGA devices, visit this URL: http://www.atyourservice.ce.philips.com (needs subscription). After login, select " Magazine", then go to " Workshop Information". Here you will find Information on how .to deal with BGA-ICs.

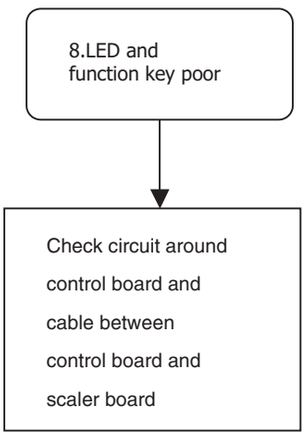
Repair Flow Chart

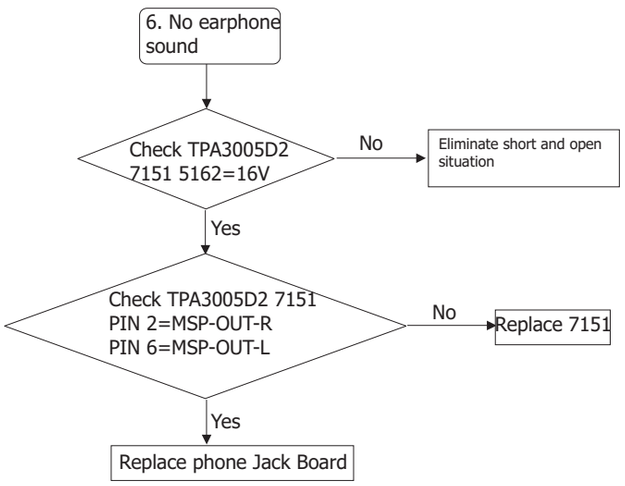


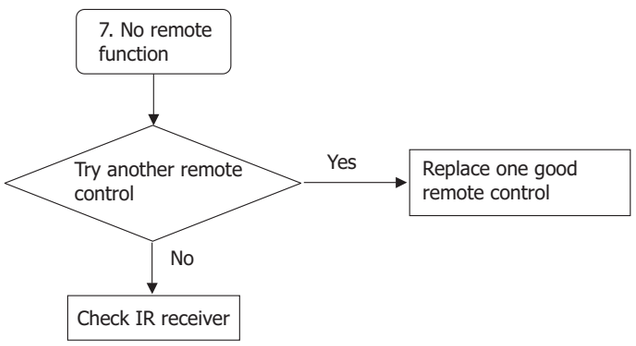
Repair Flow Chart

Go to cover page









PHILIPS

GENERAL PRODUCT SPECIFICATION

. 20"Multifunction LCD monitor.

. PC 15 pins D-SUB analog interface.

. PC audio line in with mini-Jack

. TV Tuner, S-Video, RCA AV input interface with R/L Audio-in.

. RCA connectors for YPbPr input

. NTSC, PAL TV system.

. PC graphic auto picture adjustment

. 14 user modes

. User friendly OSD menu

. User friendly remote controller

. DDC2B communication capability

. MAX. resolution 800 x 600 non-interlace at 60 Hz

. SVGA 20"color TFT LCD flat panel

. Easy tilt base

. Anti-glare to reduce light reflection

. Power management capability

All rights strictly reserved. Reproduction or issue to third parties in any form whatever is not permitted without written authority, from the proprietors.

GENERAL PRODUCT SPECIFICATION

CONTENTS

1.0 Foreword
2.0 Product profile
2.1 LCD
2.2 Scanning frequencies
2.3 Video dot rate
2.4 Power input
2.5 Power consumption
2.6 Dimensions
2.7 Weight
2.8 Side speaker
2.9 Functions
2.10 Ambient temperature
2.11 Regulatory compliance

3.0 Electrical characteristics
3.1 Interface signals cables
3.2 User interface
3.2.1 Keypad definition
3.2.2 Key Function definition
3.2.3 Remote control
3.3 PC, TV requirement
3.3.1 PC interface
3.3.1.1 Mode storing capacity
3.3.1.2 Horizontal scanning
3.3.1.3 Vertical scanning
3.3.1.4 Input connectors
3.3.1.5 Available timings
3.3.2 TV interface
3.3.2.1 TV special setting
3.3.3 Electric characteristics of I/O
3.4 Power input connection
3.5 Power management
3.6 Display identification

4.0 Visual characteristics
4.1 Test conditions
4.2 Resolution
4.3 Brightness
4.4 Image size
4.4.1 Actual display size
4.5 Brightness uniformity
4.6 PC white color adjustment
4.7 TV white color adjustment
4.8 TV picture centering

All rights strictly reserved. Reproduction or issue to third parties in any form whatever is not permitted without written authority, from the proprietors.

CLASS NO.	20" F1 TFT LCD Monitor/TV TYPE :20MF605T/17 BRAND : Magnavox	8639 000 16038	
2004-12-15			
NAME ISON KUO	SUPERS.	23	590 — 2 / 10 / A4
TY / CHECK	DATE 2004-12-15	Property of PHILIPS ELECTRONICS INDUSTRIES (TAIWAN) LTD.-B.E.	

5.0 Mechanical characteristics
5.1 Controls
5.2 Unit dimension / weight
5.3 Tilt and swivel base
5.4 Transportation packages
5.4.1 Shipping dimension / weight
5.4.2 Block unit / palletization
6.0 Environmental characteristics
6.1 Susceptibility of display to external environment
6.2 Transportation tests
6.3 Display disturbances from external environment
7.0 Reliability
7.1 Mean time between failures
8.0 Quality assurance requirements
8.1 Acceptance test
9.0 Serviceability

All rights strictly reserved. Reproduction or issue to third parties in any form whatever is not permitted without written authority, from the proprietors.

CLASS NO.	20" F1 TFT LCD Monitor/TV TYPE :20MF605T/17 BRAND : Magnavox			8639 000 16038				
2004-12-15								
NAME ISON KUO	SUPERS.		23	590 — 3		10		A4
TY	CHECK	DATE 2004-12-15	Property of PHILIPS ELECTRONICS INDUSTRIES (TAIWAN) LTD.-B.E.					

GENERAL PRODUCT SPECIFICATION

PHILIPS

1.0 FOREWORD

This specification describes a 20" multifunction LCD Monitor, maximum resolution up to 800x600/60Hz non-interlaced.

2.0 PRODUCT PROFILE

Philips 20"multifunction LCD Monitor can connect to PC s analog D-SUB connector, and also support TV, S-Video, ,YPbPr/HD, and AV interface .

Meet world wide major TV system: NAFTA

2.1 LCD Panel:

Type NR.	:A201SN02 (AUO)
Display area(mm)	: 408(H) x 306(V) (20.1-inch diagonal)
Display mode	: TN type, Normal white + SWV film
Number of Pixels	: 800(H) x 600(V)
Pitch (mm)	: 0.51(H) x 0.51(V)
Color pixel arrangement	: RGB vertical stripes
Display mode	: normally white TN
Number of color	: 16.7M (8 bits)
Brightness (cd/m^2)	: 450nit(typ.)
Viewing angle	: -80° ~ 80°(H), -60°~ 60° (V)(Typ.)
Response time	: 16ms typ. (Tr+Tf)
Surface treatment	: Hard Coating + AR
Electrical interface	: TTL (1 port)
Total module power(W)	: 35W(typ.)
Contrast ratio	: Typical 500 : 1
Overall dimension (mm)	: 448(W) x 347(H) x 23(D)(max.)
Module weight (g)	: 3500
Backlight	: 6 CCFL

** Income inspection, please refer to panel specification.**

2.2 Scanning frequencies : Hor. : 30 - 40KHz Ver.: 56 - 62 Hz

2.3 Video dot rate : <41 MHz

2.4 Power input : 90 - 264 Vac, 50/60 ± 2 Hz for AC/DC adapter (16V DC/ 3.75A)

2.5 Power consumption : typ 55 W

2.6 Unit Dimensions : mm W x mm H x mm D (Incl. Pedestal)

2.7 Unit Weight : 3.5 Kg

2.8 Chin speaker : 2 x 3 W

All rights strictly reserved. Reproduction or issue to third parties in any form whatever is not permitted without written authority, from the proprietors.

2.9 Functions :

PC 15 pins D-sub analog interface with audio mini jack input (PC line in).
TV Tuner, S-Video ,RCA AV with L/R Audio-in and YPbPr with audio.

2.10 Ambient temperature: 0 - 35 °C

2.11 Regulatory compliance :

Safety : CUL and / or CSA , NOM

UL 60950 and UL 60065 and / or CSA C22.2 NO. 950 , 065

EMI : FCC

FCC part 15 Class B

3.0 Electrical characteristics

3.1 Interface signals cables

VGA Interface Cable (option)
Length : 1.8 M +/- 50 mm

Stereo RCA R/L audio cable (option)
Length : 1.5 M +/- 50 mm

S-video cable (option)
Length : 1.5 M +/- 50 mm

AV cable (option)
Length : 1.5M +/- 50 mm

Mini Jack stereo cable (option)
Length : 1.5 M +/- 50 mm

Ypbpr cable (option)
Length : 1.5M +/- 50mm

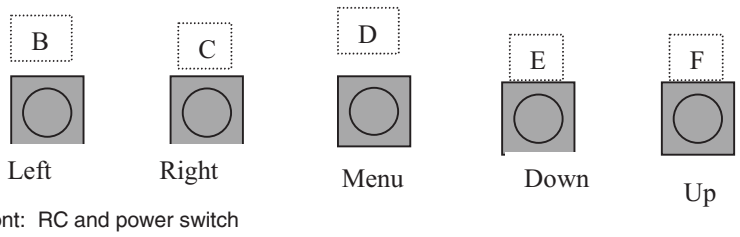
All rights strictly reserved. Reproduction or issue to third parties in any form whatever is not permitted without written authority, from the proprietors.

3.2 User interface

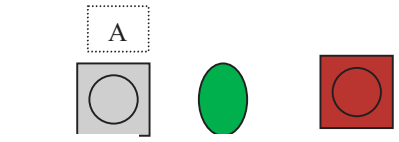
On screen display user control via keypad and remote control for PC, and TV OSD.

3.2.1 Keypad definition

Top:



Front: RC and power switch



3.2.2 Key Function definition:

Key	Function	VGA mode	TV/video mode
<A>	Power	Soft Power	Soft Power
<B>	Left	Left/Volume down	Left/Volume down
<C>	Right	Right/Volume up	Right/Volume up
<D>	Menu	Call OSD menu	Call OSD menu
<E>	Down/channel down	Down	Down/Channel Down
<F>	Up/Channel up	Up	Up/Channel up

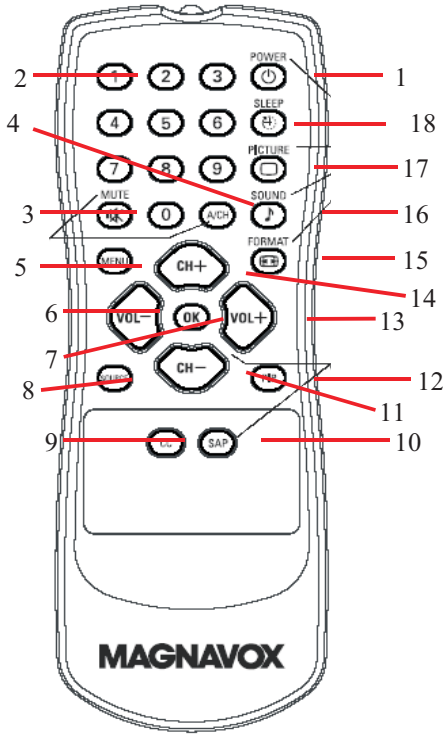
PC mode Auto adjustment hot key: Press <B> and <C> at the same time and hold for 1 seconds.

All rights strictly reserved. Reproduction or issue to third parties in any form whatever is not permitted without written authority, from the proprietors.

1. Press" MENU "key to call main menu
2. By"Up/Down" to select function and Left/Right to adjust.
3. "Left/Right" also is Volume Hot Key (TV and PC mode)
4. " Up/Down" also is Channel Hot Key (TV mode)
5. Press hot Key <B> and <C> can auto-adjust picture position, phase and clock in PC mode.
6. Source key is for switching input signal from PC/TV/AV/S-Video/HD.

Power LED:
Normal working: Green
Power saving: Amber.

3.2.1 Remote control



1.Power	: Power On/Standby
2.Numerica keys	: (0~9) ,Channel setting
3.Mute	: Sound mute function
4.Prev-CH	: Recall previous CH
5.Menu	: Main menu select and OK key
6.VOL-	: Left/Volume Down
7.OK	: OK
8.Source	: Source select for PC,Tuner,CVBS,S-video,H
9.Closed cap.	: Closed caption on/off
10.SAP(2nd audio)	: Sound select
11.CH-	: Down/Channel Down
12.PIP	: PIP size select (Small/Medium/Large/PBP)
13.VOL+	: Right/Volume Up
14.CH+	: Up/ Channel Up
15.Display Format	: Select display format (4:3, Expand 4:3, Compress 16:9)
16.Smart Sound	: Select sound effect (Personal/News/Music/Theatre)
17.Smart Picture	: Select picture effect (Personal/Movie/Sports/ weak signal/multimedia/Night)
18.Sleep Timer	: Sleep timer 15,30,60,120,180,240 OFF

All PC or TV OSD menu function could be accomplished by remote control.

All rights strictly reserved. Reproduction or issue to third parties in any form whatever is not permitted without written authority, from the proprietors. .

3.3 PC and TV requirement

3.3.1 PC interface

3.3.1.1 Mode storing capacity
Pre-load : 8
User modes : 14

3.3.1.2 Horizontal scanning
Sync polarity : Positive or Negative
Scanning frequency : 30 - 40 KHz

3.3.1.3 Vertical scanning

Sync polarity : Positive or Negative
Scanning frequency : 56 - 62 Hz

3.3.1.4 Input connectors

(1) Input analog D-sub connector pin assignment:

PIN No.	SIGNAL b(PC)
1	Red
2	Green
3	Blue
4	GND
5	GND
6	Red GND
7	Green GND
8	Blue GND
9	+5V (Supply from PC)
10	Sync GND
11	GND
12	Bi-directional data
13	H-sync
14	V-sync
15	Data clock

All rights strictly reserved. Reproduction or issue to third parties in any form whatever is not permitted without written authority, from the proprietors.

3.3.1.5 Available timings

Factory pre-load timing, size and centering are according to the reference timing charts. List as below

Mode 3, 6, 7 are preset modes that should pass QA inspection.
Mode 1, 2, 4, 5, 8 will run auto adjustment only, and W/O QA checking.

MODE NO.	1	* 2	* 3
RESOLUTION	640 x 350	720 x 400	640 x 480
Dot clock(MHz)	25.175	28.321	25.175
f h	31.469kHz	31.469kHz	31.469kHz
A (us)	31.78(800 dots)	31.78(900dots)	31.778 (800 dots)
B (us)	3.813(96 dots)	3.813(108dots)	3.813 (96 dots)
C (us)	1.907(48 dots)	1.907(54dots)	1.907 (48 dots)
D (us)	25.42(640 dots)	25.42(720dots)	25.422 (640 dots)
E (us)	0.636(16 dots)	0.636(18dots)	0.636 (16 dots)
f v	70Hz(70.09)	70Hz(70.087)	60Hz (59.940)
O (ms)	14.27(449 lines)	14.27(449 lines)	16.683 (525 lines)
P (ms)	0.064(2 lines)	0.064(2 lines)	0.064 (2 lines)
Q (ms)	1.875(59 lines)	1.080(34 lines)	1.049 (33 lines)
R (ms)	11.12(350 lines)	12.71(400 lines)	15.253 (480 lines)
S (ms)	1.208(38 lines)	0.413(13 lines)	0.317 (10 lines)
SYNC. H/V POLARITY	+/-	-/+	- / -
SEP . SYNC	Y	Y	Y

MODE NO.	4	5
RESOLUTION	640x480	640 x 480
Dot clock(MHz)	30.240	31.500
f h	35.0kHz	37.500kHz
A (us)	28.571(864 dots)	26.667 (840 dots)
B (us)	2.116(64 dots)	2.032 (64 dots)
C (us)	3.175(96 dots)	3.810 (120 dots)
D (us)	21.164(640 dots)	20.317 (640 dots)
E (us)	2.116(64 dots)	0.508 (16 dots)
f v	66.7 HZ(66.667)	75Hz (75)
O (ms)	15.000(525 lines)	13.333 (500 lines)
P (ms)	0.086(3 lines)	0.080 (3 lines)
Q (ms)	1.114(39 lines)	0.427 (16 lines)
R (ms)	13.714(480 lines)	12.80 (480 lines)
S (ms)	0.086(3 lines)	0.027 (1 line)
SYNC. H/V POLARITY	+/+ Or -/-	- / -
SEP . SYNC	Y	Y

A : H-Total
B : H- Sync width
C : H- Back porch
D : H- Video width

O : V-Total
P : V- Sync width
Q :.V- Back porch
R : V- Video length

All rights strictly reserved. Reproduction or issue to third parties in any form whatever is not permitted without written authority, from the proprietors. .

GENERAL PRODUCT SPECIFICATION

E : H- Front porch S :.V- Front porch

MODE NO.	6	7	8
RESOLUTION	800 x 600	800 x 600	800 x 600
Dot clock(MHz)	36.000	40.000	49.500
f h	35.156kHz	37.879kHz	46.875kHz
A (us)	28.44 (1024 dots)	26.40 (1056 dots)	21.333 (1056dots)
B (us)	2.000 (72 dots)	3.200 (128 dots)	1.616 (80 dots)
C (us)	3.556 (128 dots)	2.200 (88 dots)	3.232 (160 dots)
D (us)	22.22 (800 dots)	20.00 (800 dots)	16.162 (800 dots)
E (us)	0.667 (24 dots)	1.000 (40 dots)	0.323 (16 dots)
f v	56Hz (56.25)	60Hz (60.316)	75Hz (75.000)
O (ms)	17.78 (625 lines)	16.58 (628 lines)	13.333 (625lines)
P (ms)	0.057 (2 lines)	0.106 (4 lines)	0.064 (3 lines)
Q (ms)	0.626 (22 lines)	0.607 (23 lines)	0.448 (21 lines)
R (ms)	17.07 (600 lines)	15.84 (600 lines)	12.80 (600lines)
S (ms)	0.028 (1 line)	0.026 (1 line)	0.021 (1 line)
SYNC. H/V POLARITY	+ / +	+ / +	+ / +
SEP . SYNC	Y	Y	Y

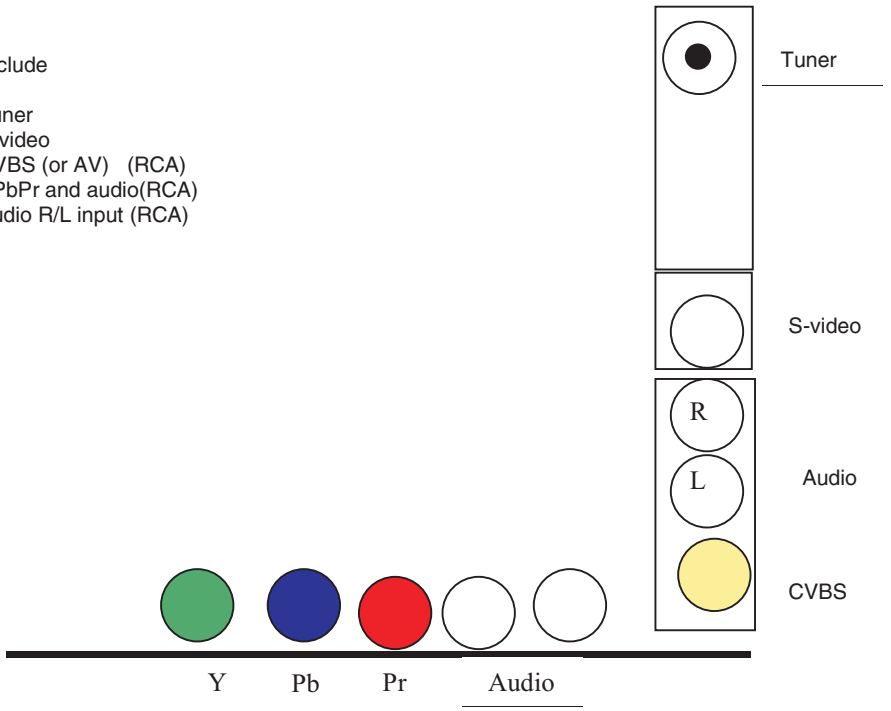
All rights strictly reserved. Reproduction or issue to third parties in any form whatever is not permitted without written authority, from the proprietors.

3.3.2 TV interface:

F1-20□ TV function include

1. Tuner
2. S-video
3. CVBS (or AV) (RCA)
4. YPbPr and audio(RCA)
5. Audio R/L input (RCA)

Location:



Following table is the deviation of main TV system.

Item	W EUROPE	America	AP	China
TV Color system	PAL, SECAM	NTSC	PAL/NTSC,	PAL
TV system	B/G, D/K, I, L	M	B/G , NTSC-M	D/K
Tuner	FQ1216ME/I Picture carrier 38.9MHz	FQ1236/F Picture carrier 45.75MHz	FQ1216PN Picture carrier 38.9MHz	FQ1256/I H-3 Picture carrier 38MHz
Sound decoder	MSP3415G	MSP3445G	MSP3415G	MSP3415G
CVBS, YC Color system	Multi	Multi	Multi	Multi
Scaler MCU	WE version	NAFTA version	AP version	China version
Closed caption	N	Y	N	N
V-chip	N	Y	N	N
Teletext	N	N	N	N
Remote controller(RC5)	NAFTA version	NAFTA version	NAFTA version	NAFTA version
Channel number	100	US Air 68, cable 125	100	100

All rights strictly reserved. Reproduction or issue to third parties in any form whatever is not permitted without written authority, from the proprietors.

GENERAL PRODUCT SPECIFICATION

Following table is the detail TV System list.

TV system	Position of sound carrier (MHz)	Sound system	Color system	Country
M	4.5/4.724212	FM-Stereo(A2)	NTSC	Korea
	4.5	FM-FM(EIA-J)	NTSC	Japan
	4.5	BTSC-stereo+SAP	NTSC	USA
N	4.5	BTSC-stereo+SAP	PAL	Argentina
B/G	5.5/5.7421875	FM-stereo(A2)	PAL	Germany, Austria, Switzerland, Italy, Netherlands,
	5.5/5.85	FM-Mono/ NICAM	PAL	Belgium, Spain, Denmark, Finland, Norway, Sweden.
L	6.5/5.85	AM-Mono/ NICAM	SECAM-L	France
I	6.0/6.552	FM-Mono/ NICAM	PAL	Great Britain, Hong Kong, Ireland
D/K	6.5/6.2578125	FM-Stereo (A2,D/K1)	SECAM-East	Slovak. Rep.
	6.5/6.7421875	FM-Stereo (A2,D/K2)	PAL	None
	6.5/5.7421875	FM-Stereo (A2,D/K3)	SECAM-East	Poland
	6.5/5.85	FM-Mono/ NICAM(D/K,NICAM)	PAL	China, Hungary

3.3.2.1 TV special setting:

Close Caption, V-chip (NAFTA Tuner ,CVBS input source only)
- CC-1 .. CC-4 decoding and display
- TXT1..TXT4 Text mode
- No Extended Data Services (EDS)
- support violence rating and checking
- Automatic CC-1 selection at user mute

3.3.3 Electric characteristics of I/O

D-sub 15 pins:
PC mode.
- Impedance: 75ohm.
- Level: 700mV
- Sync: TTL level, separate sync, + or - polarity.

All rights strictly reserved. Reproduction or issue to third parties in any form whatever is not permitted without written authority, from the proprietors.

PC-stereo input (For PC)
- Audio: Impedance > 10 k.

Input Level: 500 mVrms (Speaker outpout 3W when Input level > 630mVrms and Volume control at 100%)

RCA A/V, and audio R+L input
- Location: Rear side
- CVBS: 75? impedance.
DC coupled signals 1Vpp
(Sync:300mV, video:700mV)
- Audio: Impedance > 10 k.
Input Level: 500 mVrms (Speaker outpout 3W when Input level > 630mVrms and Volume control at 100%)
- ESD-protected : 15 kV

HEADPHONE
- Location : On scaler board.
- Peripherals : Headphones with impedance between 8 - 600 ohm
- - Features :When headphone plug is connected, loudspeaker
- sound is muted.
- Volume control: with the loudspeaker volume.
- Connector type : 3.5 mm stereo Jack, with switch
- Specifications : - Output: 32ohm>10 mW

- Sound is the same as from the loudspeakers.
- ESD-protected : 15 kV

YPbPr:
- Location : Rear side
- Connector type: RCA Jack
- Input : 75ohm.

S-video:
- Location : Rear side
- Input : 75ohm.

3.2 Power input connection
AC/DC adapter: +16V DC/ 3.75A (AC input 100~240V)
Power cord length : 1.8 M
Power cord type : 3 leads power cord with protective earth plug.

All rights strictly reserved. Reproduction or issue to third parties in any form whatever is not permitted without written authority, from the proprietors.

GENERAL PRODUCT SPECIFICATION

3.5 Power management

PC mode

The power consumption and the status indication of the set with power management function are as follows,

STATUS	Horizontal	Vertical	Power Spec $120V_{AC}$	Power Spec $230V_{AC}$	LED
On	Pulse	Pulse	Typical	55 W	Green
Sleep	No Pulse	No Pulse	< 1 W	< 1 W	Amber
Power switch off	-	-	< 1 W	< 1 W	-

TV mode

The power consumption and the status indication of the set with power management function are as follows,

STATUS	Power Spec $120V_{AC}$	Power Spec $230V_{AC}$	LED
Active	Typical	55 W	Green
Sleep	< 1 W	< 1 W	Amber
Power switch off	< 1 W	< 1 W	-

In Monitor power saving mode, which no H&V sync, or absent either H-sync or V-sync input via VGA connector. The monitor will enter" Monitor saving "mode . The way to wake up or change source:

1. "Source" key on remote control→ change to TV source directly.

In TV power saving mode, which switched off by RC "Standby" key, SLEEP TIMER function or no TV signal input for 30 minutes, the monitor will enter TV standby mode , and LED shows amber color. The way to wake up:

1. "Source" key on remote control→ change to TV source directly.
2. "Standby "key on remote control.

3.6 Display identification

In accordance with DDC requirement -"DDC2B."

All rights strictly reserved. Reproduction or issue to third parties in any form whatever is not permitted without written authority, from the proprietors.

4.0 Visual characteristics

4.1 Test conditions

Unless otherwise specified, this specification is defined under the following conditions.

(1) Input signal : As defined in 3.3.1.2, 800 x 600 non-interlaced mode (37.9 KHz), signal sources must have 75 ohm output impedance.

(2) Luminance setting: controls to be set to 450 Nits (typical) with full screen 100 % duty cycle white signal.

(3) Warm up: more than 30 minutes after power on with signal supplied.

(4) Ambient light: 400 -- 600 lux.

(5) Ambient temperature: 25 +/- 2 °C

4.2 Resolution

Mode 3, 6, 7 are preset modes that should pass QA inspection.
Mode 1, 2, 4, 5, 8 will run auto adjustment only, and W/O QA checking.

#	Resolution	Frequency	Pixel rate	Sync	Comment
1	640X350	31.5K/70HZ	25.175	(+/-)	IBM VGA
2	720X400	31.5K/70HZ	28.322	(-/+)	IBM VGA
3	640X480	31.5K/60HZ	25.175	(-/-)	IBM VGA
4	640X480	35.0K/67HZ	30.24	(-/-)	MAC
5	640X480	37.5K/75HZ	31.501	(-/-)	VESA
6	800X600	35.2K/56HZ	36	(+/+)	VESA
7	800X600	37.9K/60HZ	40	(+/+)	VESA
8	800X600	46.9K/75HZ	49.498	(+/+)	VESA

4.3 Brightness:
Typical 450 nits at maximum contrast and Brightness. (at center of the screen, Fig. 1)

4.4 Image size
4.4.1 Actual display size 408 x 306 mm

All rights strictly reserved. Reproduction or issue to third parties in any form whatever is not permitted without written authority, from the proprietors.

4.5 Brightness uniformity

Set contrast at 100% and turn the brightness to Max. (At original color)

Apply the Fig 1, it should comply with the following formula:

$$\frac{\text{Minimum luminance of five points (brightness)}}{\text{Maximum luminance of five points (brightness)}} > 75\%$$

4.6 PC White color adjustment

There are three factory preset white color 8500K

Apply full white pattern, with brightness in 50 % position and the contrast control at 50% position.

The 1931 CIE Chromaticity (color triangle) diagram (x,y) coordinate for the screen center should be:

8500K CIE coordinates X = 0.289 ± 0.030
Y = 0.304 ± 0.030

4.7 TV White color adjustment

There is one factory preset white color x=0.289 ± 0.030; y=0.304 ± 0.030 for TV RF signal with the 1931 CIE Chromaticity diagram (x,y) coordinate ,FLUKE54200 color temp pattern, Smart picture is Personal.

4.8 TV picture centering.

Use CVBS (PAL and NTSC) input with cross hatch pattern to check the picture centering and should be

Left(size)-right(size) < +/- 3mm.
Up(size)-down(size) < +/- 3mm.

All rights strictly reserved. Reproduction or issue to third parties in any form whatever is not permitted without written authority, from the proprietors.

5.0 Mechanical characteristics

5.1 Controls

Top Control :

- Up key
- Down key
- Menu key
- Right key
- Left key

Front
- RC sensor
- DC power switch

Rear I/O :

- DC inlet
- PC D-sub
- Tuner input
- Cinch CVBS input (AV)
- Cinch Audio input
  (S-video and CVBS use same audio)
- S-Video input
- Mini jack PC audio input
- Ypbpr,
- Audio for YPbPr

5.2 Unit dimension / Weight

Set dimension (incl. pedestal): 590mm W x 448.5mm H x 196mm D
Net weight: 8 Kg

5.3 Tilt base

tilt angle : 0 to 20 degree

5.4 Transportation packages

5.4.1 Shipping dimension/Weight

Carton dimension : 680mm W x 533mm H x 235mm D
Gross weight : 9.2 Kg

5.4.2 Block unit / Palletization (Air shipment)

layers/block	sets/layer	sets/block unit
9	4	36

All rights strictly reserved. Reproduction or issue to third parties in any form whatever is not permitted without written authority, from the proprietors.

GENERAL PRODUCT SPECIFICATION

6.0 Environmental characteristics

The following sections define the interference and susceptibility condition limits that might occur between external environment and the display device.

6.1 Susceptibility of display to external environment

Operating
- Temperature : 0 to 35 ℃
- Humidity : 80% max
- Altitude : 0-3658m
- Air pressure : 600-1100 mBAR

Storage
- Temperature : -20 to 60 ℃
- Humidity : 95% max (< 40℃)
- Altitude : 0-12192m
- Air pressure : 300-1100 mBAR

Note: recommend at 0 to 35°C, Humidity less than 60 %

6.2 Transportation tests

Standard		ISTA-1A
Drop Test	Height	61cm
	Sequence	1C-3E-6F (10 drops)
	Test Result	Electrical function ok Mechanical function ok No serious damage on set appearance (room temp./-10℃, humidity 70 %)
Vibration Test	Sequence	--- PACKAGING 5~500 Hz , 0.73Gms , 30 min. for Each axis(X,Y.Z)
	Test Result	Electrical function ok Mechanical function ok No serious damage on set appearance

6.3 Display disturbances from external environment

According to IEC 801-2 for ESD disturbances

7.0 Reliability

7.1 Mean Time Between Failures

System MTBF (Excluding the LCD panel and CCFL) : 50,000 hrs

CCFL MTBF : 40,000 hrs

All rights strictly reserved. Reproduction or issue to third parties in any form whatever is not permitted without written authority, from the proprietors.

8.0 Quality assurance requirements

8.1 Acceptance test

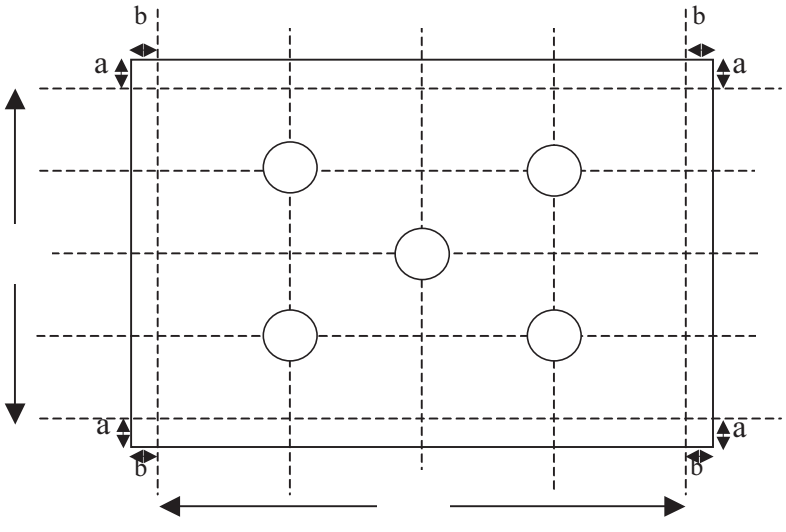
according to MIL-STD-105D Control II level

AQL : 0.65 (major)
2.5 (minor)
(please also refer to annual quality agreement)

9.0 Serviceability

The serviceability of this monitor should fulfill the requirements which are prescribed in UAW-0346 and must be checked with the check list UAT-0361.

Fig 1: Brightness and Uniformity measure points



All rights strictly reserved. Reproduction or issue to third parties in any form whatever is not permitted without written authority, from the proprietors.

CLASS NO.	20" F1 TFT LCD Monitor/TV TYPE :20MF605T/17 BRAND : Magnavox			8639 000 16038				
2004-12-15								
NAME ISON KUO	SUPERS.	23	590 — 19	10		A4		
TY CHECK	DATE 2004-12-15	Property of PHILIPS ELECTRONICS INDUSTRIES (TAIWAN) LTD.-B.E.						

GENERAL PRODUCT SPECIFICATION

Table 1.

NAFTA TV Channels

US- Air broadcast channel

Broadcast Channel	Video Carrier (MHz)	Audio Carrier (MHz)	Range (MHz)
2	55.25	59.75	54-60
3	61.25	65.75	60-66
4	67.25	71.75	66-72
5	77.25	81.75	76-82
6	83.25	87.75	82-88
7	175.25	179.75	174-180
8	181.25	185.75	180-186
9	187.25	191.75	186-192
10	193.25	197.75	192-198
11	199.25	203.75	198-204
12	205.25	209.75	204-210
13	211.25	215.75	210-216
14	471.25	475.75	470-476
15	477.25	481.75	476-482
16	483.25	487.75	482-488
17	489.25	493.75	488-494
18	495.25	499.75	494-500
19	501.25	505.75	500-506
20	507.25	511.75	506-512
21	513.25	517.75	512-518
22	519.25	523.75	518-524
23	525.25	529.75	524-530
24	531.25	535.75	530-536
25	537.25	541.75	536-542
26	543.25	547.75	542-548
27	549.25	553.75	548-554
28	555.25	559.75	554-560
29	561.25	565.75	560-566
30	567.25	571.75	566-572
31	573.25	577.75	572-578
32	579.25	583.75	578-584
33	585.25	589.75	584-590
34	591.25	595.75	590-596
35	597.25	601.75	596-602
36	603.25	607.75	602-608
37	609.25	613.75	608-614
38	615.25	619.75	614-620
39	621.25	625.75	620-626
40	627.25	631.75	626-632
41	633.25	637.75	632-638
42	639.25	643.75	638-644
43	645.25	649.75	644-650
44	651.25	655.75	650-656
45	657.25	661.75	656-662
46	663.25	667.75	662-668
47	669.25	673.75	668-674
48	675.25	679.75	674-680
49	681.25	685.75	680-686
50	687.25	691.75	686-692

All rights strictly reserved. Reproduction or issue to third parties in any form whatever is not permitted without written authority, from the proprietors.

51	673.25	697.75	692-698
52	699.25	703.75	698-704
53	705.25	709.75	704-710
54	711.25	715.75	710-716
55	717.25	721.75	716-722
56	723.25	727.75	722-728
57	729.25	733.75	728-734
58	735.25	739.75	734-740
59	741.25	745.75	740-746
60	747.25	751.75	746-752
61	753.25	757.75	752-758
62	759.25	763.75	758-764
63	765.25	769.75	764-770
64	771.25	775.75	770-776
65	777.25	781.75	776-782
66	783.25	787.75	782-788
67	789.25	793.75	788-794
68	795.25	799.75	794-800
69	801.25	805.75	800-806

US-Cable channel

Cable Channel	Video carrier MHz	Audio carrier MHz	Range MHz
2	55.25	59.75	54-60
3	61.25	65.75	60-66
4	67.25	71.75	66-72
1	73.25	77.75	72-78
5	79.25	83.75	76-82
6	85.25	89.75	82-88
95	91.25	95.75	90-96
96	97.25	101.75	96-102
97	103.25	107.75	102-108
98	109.25	113.75	108-114
99	115.25	119.75	114-120
14	121.25	125.75	120-126
15	127.25	131.75	126-132
16	133.25	137.75	132-138
17	139.25	143.75	138-144
18	145.25	149.75	144-150
19	151.25	155.75	150-156
20	157.25	161.75	156-162
21	163.25	167.75	162-168
22	169.25	173.75	168-174
7	175.25	179.75	174-180
8	181.25	185.75	180-186
9	187.25	191.75	186-192
10	193.25	197.75	192-198
11	199.25	203.75	198-204
12	205.25	209.75	204-210
13	211.25	215.75	210-216
23	217.25	221.75	216-222
24	223.25	227.75	222-228
25	229.25	233.75	228-234

All rights strictly reserved. Reproduction or issue to third parties in any form whatever is not permitted without written authority, from the proprietors.

GENERAL PRODUCT SPECIFICATION

26	235.25	239.75	234-240
27	241.25	245.75	240-246
28	247.25	251.75	246-252
29	253.25	257.75	252-258
30	259.25	263.75	258-264
31	265.25	269.75	264-270
32	271.25	275.75	270-276
33	277.25	281.75	276-282
34	283.25	287.75	282-288
35	289.25	293.75	288-294
36	295.25	299.75	294-300
37	301.25	305.75	300-306
38	307.25	311.75	306-312
39	313.25	317.75	312-318
40	319.25	323.75	318-324
41	325.25	329.75	324-330
42	331.25	335.75	330-336
43	337.25	341.75	336-342
44	343.25	347.75	342-348
45	349.25	353.75	348-354
46	355.25	359.75	354-360
47	361.25	365.75	360-366
48	367.25	371.75	366-372
49	373.25	377.75	372-378
50	379.25	383.75	378-384
51	385.25	389.75	384-390
52	391.25	395.75	390-396
53	397.25	401.75	396-402
54	403.25	407.75	402-408
55	409.25	413.75	408-414
56	415.25	419.75	414-420
57	421.25	425.75	420-426
58	427.25	431.75	426-432
59	433.25	437.75	432-438
60	439.25	443.75	438-444
61	445.25	449.75	444-450
62	451.25	455.75	450-456
63	457.25	461.75	456-462
64	463.25	467.75	462-468
65	469.25	473.75	468-474
66	475.25	479.25	474-480
67	481.25	485.75	480-486
68	487.25	491.75	486-492
69	493.25	497.75	492-498
70	499.25	503.75	498-504
71	505.25	509.75	504-510
72	511.25	515.75	510-516
73	517.25	521.75	516-522
74	523.25	527.75	522-528
75	529.25	533.75	528-534
76	535.25	539.75	534-540
77	541.25	545.75	540-546
78	547.25	551.75	546-552
79	553.25	557.75	552-558
80	559.25	563.75	558-564
81	565.25	569.75	564-570

All rights strictly reserved. Reproduction or issue to third parties in any form whatever is not permitted without written authority, from the proprietors.

82	571.25	575.75	570-576
83	577.25	581.75	576-582
84	583.25	587.75	582-588
85	589.25	593.75	588-594
86	595.25	599.75	594-600
87	601.25	605.75	600-606
88	607.25	611.75	606-612
89	613.25	617.75	612-618
90	619.25	623.75	618-624
91	625.25	629.75	624-630
92	631.25	635.75	630-636
93	637.25	641.75	636-642
94	643.25	647.75	642-648
100	649.25	653.75	648-654
101	655.25	659.75	654-660
102	661.25	665.75	660-666
103	667.25	671.75	666-672
104	673.25	677.75	672-678
105	679.25	683.75	678-684
106	685.25	689.75	684-690
107	691.25	695.75	690-696
108	697.25	701.75	696-702
109	703.25	707.75	702-708
110	709.25	713.75	708-714
111	715.25	719.75	714-720
112	721.25	725.75	720-726
113	727.25	731.75	726-732
114	733.25	737.75	732-738
115	739.25	743.75	738-744
116	745.25	749.75	744-750
117	751.25	755.75	750-756
118	757.25	761.75	756-762
119	763.25	767.75	762-768
120	769.25	773.75	768-774
121	775.25	779.75	774-780
122	781.25	785.75	780-786
123	787.25	791.75	786-792
124	793.25	797.75	792-798
125	799.25	803.75	798-804

All rights strictly reserved. Reproduction or issue to third parties in any form whatever is not permitted without written authority, from the proprietors. .

CLASS NO.

2004-12-15

20" F1 TFT LCD Monitor/TV
TYPE :20MF605T/17
BRAND : Magnavox

8639 000 16038

NAME ISON KUO | SUPERS. | 23 | 590 — 23 | 10 | A4

TY | CHECK | DATE 2004-12-15 | Property of PHILIPS ELECTRONICS INDUSTRIES (TAIWAN) LTD.-B.E.

2838 100 05424

Circuit Description

Go to cover page

1. General Description

This LCD-TV-F1 support PC analog input up to 1280X768 75Hz mode for WXGA panel, and support TV (RF), YC, CVBS, and SCART. Also for Y Pb Pr signal input from SDTV to HDTV (480I, 480P, 720P, 1080i 60Hz and 576I, 576P, 720P, 1080I 50H z).

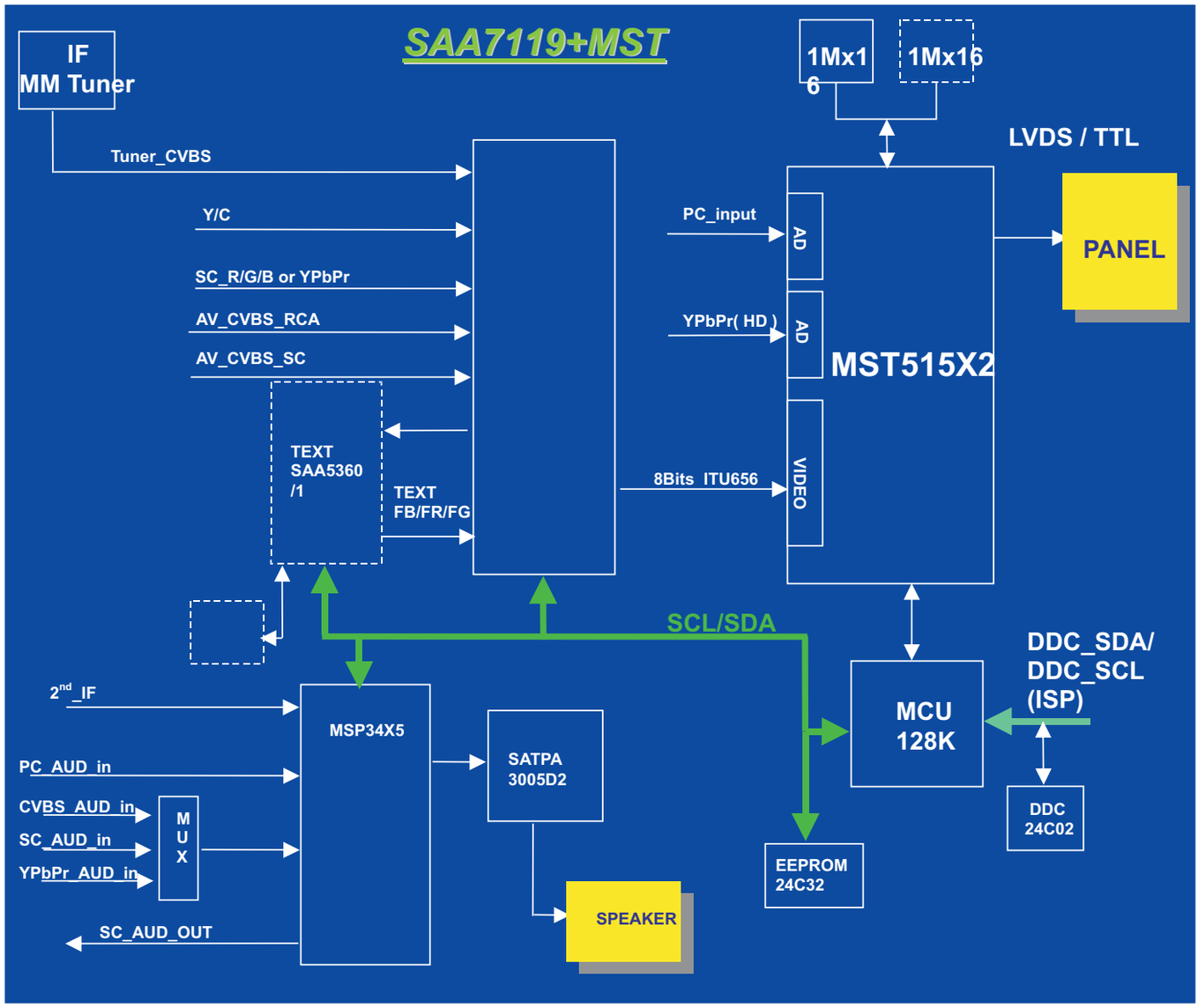
This LCD - TV use MST51510 as Scaler engine, which has embedded Analog D-sub, digital DVI decoder, scaling input signal to panel OSD mapping and simple 3D de-interlacer. The extra SDRAM is to accomplish video frame rate conversion and PIP function.

The external CPU can be used to back light control, RC, keypad input, IIC I/O communication and. TV tuning control, sound control, and SAA7119A video decoder.

Video decoder SAA7119 is used for TV video processing and convert it with CCIR 601/16bits or 656/8bits digital format and send to Scaler for de-interlace process, and also CC,V-chip data decode.

One audio decoder MSP34XXG is used for TV sound processing, and output to post amplifier and SCART out.

An option function in WE model Telttext display . Data decode is done by SAA5360, output RGB/FB is to video decoder input for text overlapping. In non-text model, this chip is N.C.



Scaler choice:

If the panel interface is TTL type: 20" use MST51502L

If the panel interface is LVDS type: 14"15"17 "use MST51512L

Tuner & sound decoder deviation.

	WE	NAFT	AP	China
1601 Tuner	FQ1216MK3 3139 147 18291	FQ1236 3139 147 18351	FQ1216 PN 3139 147 20401	FQ1256 3139 147 20131
7101 Msp	Msp3415 9322 194 13671	Msp3445 9322 194 12671	Msp3415 9322 194 13671	Msp3415 9322 194 13671

3. Function description:

MM tuner is used to receive RF wave and output CVBS and 2nd IF signal. CVBS is to video decoder (SAA7119) for color process, 2nd IF is to sound decoder (MSP34x5) for audio process. The tuner control is via IIC ex. channel tuning. For different TV system, tuner and sound decoder have diversity as above.

Standard TV input (Tuner, S-video, CVBS, SCART) is processed by SAA7119, But YPbPr, SDTV and HDTV(480i, 576i, 480p,576p,720p,1080i), is done by scaler MST51512L/502L ADC. But the signal is still link to SAA7119 if PIP (video in graph) function is requested. Then all YPbPr signal processed by SAA7119 could be the PIP video source. (* May use down sampling in HD0) MV protect is decoded by scaler.

Video decoder SAA7119, is in charge of color decoding, could support PAL, NTSC and SECAM world wide system. Compare to SAA7118, SAA7119 improve some picture quality, like V-chip CC I2C read-back, LTI, CTI, skin tone correction(see task A), also the HD0 is supported, so if F1 need PIP function then the The

Teltext function is for WE model, need a extra IC SAA5360. CVBS input, R/G/B, FB, out. Due to the SAA5360 request input signal 1Vrms and only one input channel, so the CVBS input source is from SAA7119 AOUT (CVBS out with 1Vrms). The R/G/B FB output into SAA7119 by AI22/AI32/AI42, and AI44 could overlay on any video source.

Sound decoder MSP3415/45 is responsible to sound decode of tuner 2nd IF. It has one 2nd IF, two selectable audio sources input. And one loudspeaker, one scart out. Due to the input port limitation, a MUX is added for AV source select(PC audio in is fix in SC1). If the post audio amplifier is gain fixed type then the volume adjust will be on MSP34x5.

Scaler MST51502L/51512L besides scaling function, PIP, 3D de-interlacer, color enhance are major feature. Even de-interlacer is not so good but for static picture is enough to avoid image sticking.

In America market, to avoid patent issue, two SDRAM is necessary for graph frame buffer. But in else region one SDRAM is enough. Of course, if no PC mode in spec, then one SDRAM for all model.

The scaler structure limitation, the PIP source only from "video port", 8 bits or 16 bits. The sub window /PIP size can enlarge to half screen.

MCU, NT68F632AL, is 128K flash ROM inside. Power control, RC5 I/O, and key function all done by here. All chip communication is by IIC (SDA/SCL), and ISP is via DDCIIC, but if PC mode un-supported, then a reserved 6pin connector is for same application.

Safety Test Requirements

All units that are returned for service or repair must pass the original manufactures safety tests. Safety testing requires both *Hipot* and *Ground Continuity* testing.

HI-POT TEST INSTRUCTION

1.Application requirements

1.1 All mains operated products must pass the Hi-Pot test as described in this instruction.
1.2 This test must be performed again after the covers have been refitted following the repair, inspection or modification of the product.

2. Test method

2.1 Connecting conditions

2.1.1 The test specified must be applied between the parallel-blade plug of the mainscord and all accessible metal parts of the product.
2.1.2 Before carrying out the test, reliable conductive connections must be ensured and thereafter be maintained throughout the test period.
2.1.3 The mains switch(es) must be in the "ON" position.

2.2 Test Requirements
All products should be HiPot and Ground Continuity tested as follows:

Condition	HiPot Test for products where the mains input range is Full range(or 220V AC)	HiPot Test for products where the mains input is 110V AC(USA type)	Ground Continuity Test requirement
Test voltage	2820VDC (2000VAC)	1700VDC (1200VAC)	Test current: 25A,AC Test time: 3 seconds(min.) Resistance required: <=0.09+Rohm, R is the resistance of the mains cord.
Test time (min.)	3 seconds	1 second	
Trip current (Tester)	set at 100 uA for Max. limitation; set at 0.1 uA for Min. Limitation	5 mA	
Ramp time (Tester)	set at 2 seconds		

2.2.1 The minimum test duration for Quality Control Inspector must be 1 minute.

2.2.2 The test voltage must be maintained within the specified voltage + 5%.

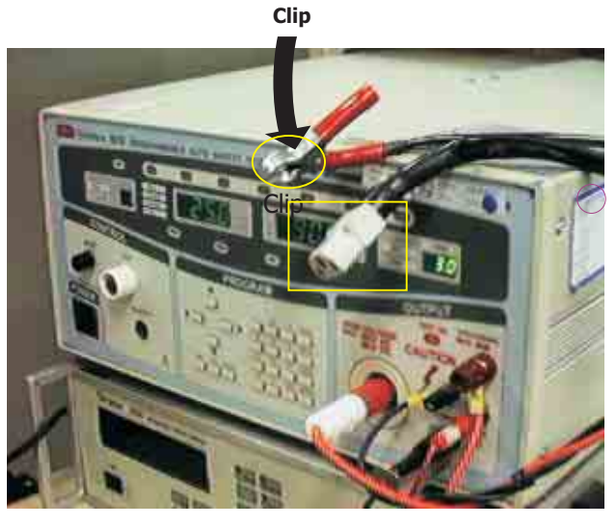
2.2.3 There must be no breakdown during the test.

2.2.4 The grounding blade or pin of mains plug must be conducted with accessible metal parts.

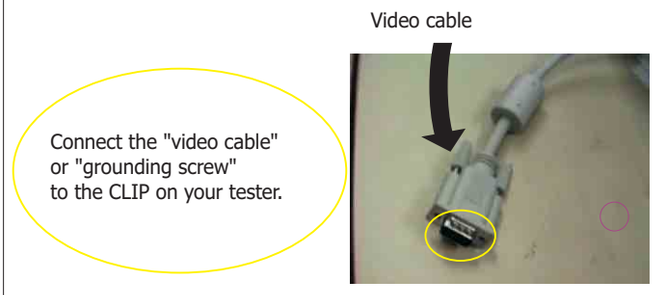
3. Equipments and Connection

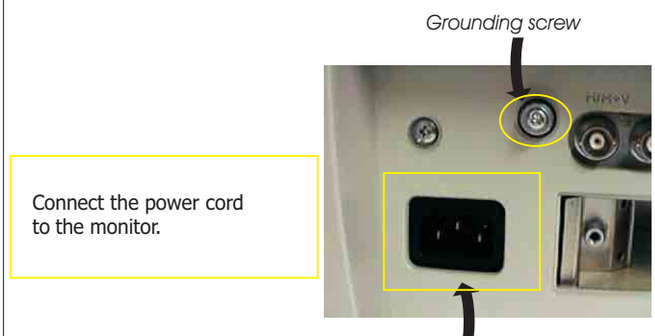
3.1. Equipments
For example :
- ChenHwa 9032 PROGRAMMABLE AUTO SAFETY TESTER
- ChenHwa 510B Digital Grounding Continuity Tester
- ChenHwa 901 (AC Hi-pot test), 902 (AC, DC Hi-pot test) Withstanding Tester

3.2. Connection
* Turn on the power switch of monitor before Hipot and Ground Continuity testing.



(ChenHwa 9032 tester)





(Rear view of monitor)

4. Recording

Hipot and Ground Continuity testing records have to be kept for a period of 10 years.

TELEVISION/MONITOR SAFETY GUIDELINES FOR THE PROFESSIONAL SERVICE TECHNICIAN

Safety Checks

After the original swevice problem has been corrected,a complete safety check
should be made. Be sure to check over the entire set, not just the areas where you have worked. Some previous servicer may have left an unsafe condition,which could be unknowingly passed on to your customer. Be sure to check all of the following:

Fire and Shock H azard

1. Be sure all components are positioned in such a way as to avoid the possibility of adjacent component shorts. This is especially important on those chassis which are transported to and feom the service shop.
2. Never release a repaired unit unless all protective devices such as insulators, barries, covers, strain reliefs, and other hardware have been installed in accordance with the original design.
3. Soldering and wiring must be inspected to locate possible cold solder joints,solder splashes,sharp solder points, frayed leads, pinched leads, or damaged insulation (including the ac cord).Be certain to remove loose solder balls and all other loose foreign particles.
4. Check across-the-line components and other components for physical evidence of damage or deteriortion and replace if necessary. Follow original layout,lead length, and dress.
5. No lead or component should touch a receiving tube or a resistor rated at 1 watt or more. Lead tension around protruding metal surfaces or edges must be avoided.
6. Critical components having special safety characteristics are identified with ans bythe Ref. No. in the parts list and enclosed within a broken line * (where seceral criticalcomponents are grouped in one area) along with the safety symbols on the schematic diagrams and/or exploded views.
7. When servicing any unit, always use a seoparate isolation transformer for the chassis Failure to use a separate isolation transformer may exopose you to possible shock hazard, and may cause damage to servicing instruments.
8. Many electronic products use a polarized ac line cord (one wide pin on the plug.) Defeating this safety feature may create a potential hazard to the service and the user. Extension cords which do not incorporate the polarizing feature should never be used.
9. After reassembly of the unit, always perform an leakage test or resistance test from the line cord to all exposed metal parts of the cabinet. Also check
all metal control shafts(with knobs removed), antenna terminals, handles, screws, etc. to be sure the unit may be safety operted without danger of electrical shock.

* Broken line

Implosion

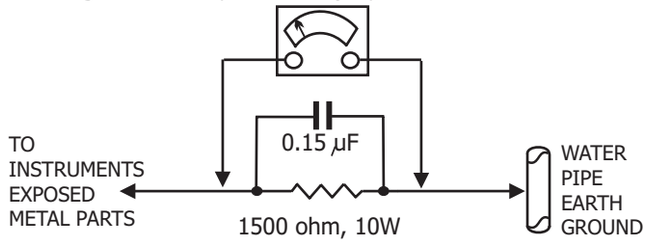
1. All picture tubes used in current model receivers are equipped with an intergral implosion system. Care should always be used, and safety glassesworn,whenever handling any picture tube. Avoid scratching or other rwise damaging the picture tube during installation.
2. Use only replacement tubes specified by the manufacturer.

X-radiation

1. Be sure procedures and instructions to all your service personnel cover the subject of X-radiation. Potential sources of X-rays in TV receivers are the picture tube and the high voltage circuits. The basic precaution which must be exercised is to keep the high voltage at the factory recommended
level.
2. To avoid possible exposure to X-radiation and electrical shock, only the manufacturer's specified anode connectors must be used.
3. It is essential that the service technician has an accurate HV meter available at all times. The calibration of this meter should be checked periodically against a reference standard.
4. When the HV circuitry isoperating properly there is no possibility of an x-radiation problem. High voltage should always be kept at the anufacture,s rated value-no higher - for optimum performance. Every time a color set is serviced, the brightness should be run up and down while monitoring the HV with a meter to be certain that the HV is requlated correctlv and does not exceed the specified value. We suggest that you and your technicians review test procedures so that HV requation are always checked as a standard servicing procedure, and the reason for this prudent routine is cleary understood by everyone. It is important to use an accurate and reliable HV meter. It is recommended that the HV recorded on each customer's invoice, which will demonstrate a proper concern for the customer's safety.
5. When troubleshooting and making test measurements in a receiver with
6. New picture tubes are specifically designed to withstand higher operathng voltages without creating undesirable X-radiation. It is strongly recommended that any shop test fixture which is to be used with the new higher voltage chassis be equipped with one of the new type tubes designed for this service.Addition of a permanently connected HV meter to the shop test fixture is advisable. The CRT types used in these new sets should never be replaced with any other types,as this may result in excessive X-radiation.
7. It is essential to use the specified picture tube to avoid a possible X-diation problem.
8. Most TV receivers contain some type of emergency "Hold Down" circuit to pervent HV from rising to excessive levels in the presence of a failure mode. These various circuits should be understood by all technicians servicing them, especially since many hold down circuits are inoperative as long as the receiver performs normally.

Leakage Current Cold Check

1. Unplug the ac line cord and connect a jumper between the two prongs of the plug.
2. Turn on the power switch.
3. Measure the resistance value between the jumpered ac plug and all exposed cabinet parts of the receiver, such as screw heads, antennas, and control shafts.When the exposed metallic part has a return path to the chassis, the reading should be between 1 megohm and 5.2 megohms. When the exposed metal does not have a return path to thr chassis, the reading must be infinity.Remove the jumper from the ac line cord.



Leakage Current Hot Check

1. Do not use an isolation transformer for this test. Plug the completely reassembled receiver directly into the ac outlet.
2. Connect a 1.5k, 10w resistor paralleled by a 0.15uf. capacitor between each exposed metallic cabinet part and a good earth ground such as a water pipe, as shown above.
3. Use an ac voltmeter with at least 5000 ohmsy volt sensitivity to measure the potential across the resistor.
4. The potential at any point should not exceed 0.75 volts. A leakage current tester may be used to make this test; leakage current must not exceed 0.5 milliamps. If a measutement is outside of the specified limits, there is a possibility of shock hazard. The receiver should be repaired and rechecked before retutning it to the customer.
5. Repeat the above procedure with the ac plug reversed.(Note: An ac adapter is necessary when a polarized plug is used. Do not defeat the polarizing feature of the plug.)

Picture Tube Replacement

The primary source of X-radiation in this television receiver is the picture tube.The picturetube utilized in this chassis is specially constructed to limit X-radiation emissions. For continued X-radiation protection, the replacement tube must be the same type as the original, including suffix letter,or a Philips approved tupe.

Parts Replacement

Many electrical and mechanical parts in Philips television sets have special safety related charcteristics. These characteristics are often not evident from visual inspection nor can the protection afforded by them necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. The use of a substitute part which does not have the same safety characteristics as the Philips recommended replacement part shown in this service manual may create shock, fire, or other hazards

WARNING : Before removing the CRT anode cap, turn the unit OFF and short the HIGH VOLTAGE to the CRT DAG ground.
SERVICE NOTE : The CRT DAG is not at chassis ground.